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BIOL 5200 Advanced Anatomy and Physiology I, includes lab experience (3)
Provides the student an opportunity to build upon basic knowledge of the anatomy and physiology of cells, tissues, and blood, as well as knowledge of the musculoskeletal, neuroendocrine, and respiratory systems, and that knowledge’s applicability to anesthesia and acute care. A review of cell physiology is followed by in-depth analysis of muscular, nervous, and circulatory systems. Gross anatomy includes study of head and neck, and thorax. The student engages in critical thinking regarding the effects of anesthetics on physiologic functions and their relation to the client’s state of health/wellness as it interacts with the culturally diverse population of the twenty-first century. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5250 Biostatistics for Nurse Anesthesia (3)
A basic introduction to the use of statistics in nurse anesthesia. Topics covered include: descriptive statistics, probability, sampling estimation, 1- and 2-tests, chi-square tests, and one-way analysis of variance and regression analysis. Computers will be used for some computation analysis. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5300 Advanced Anatomy and Physiology II, includes lab experience (3)
Provides the student an opportunity to continue building upon basic knowledge of the anatomy and physiology of the cardiovascular, digestive, hepatic, reproductive, and renal systems, with particular reference to anesthesia and acute care management. An in-depth analysis will be made of the cardiovascular system. The student thinks critically regarding the effects of anesthesia on normal physiologic functions of the cardiovascular and renal systems. Continuation of gross anatomy study of thorax and abdominal and pelvic regions. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5320 Advanced Anatomy and Physiology III, includes lab experience (3)
This course is a continuation of Anatomy and Physiology II. It continues to explore the topics of the cardiovascular, digestive, hepatic, reproductive, and renal systems, with particular reference to anesthesia and acute care management. An in-depth analysis will be made of the cardiovascular system. The student thinks critically regarding the effects of anesthesia on normal physiologic functions of the cardiovascular and renal systems. Continuation of gross anatomy study of thorax and abdominal and pelvic regions. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5400 Introduction to Anesthesia (3)
This is the first course in anesthesia designed to introduce the student to the basic professional aspects of nurse anesthesia practice including professional development and ethical, social, and legal issues. Introduction to the field of anesthesia also includes orientation to the basic physical facility, equipment, fundamental pharmacology, anesthetic techniques, and specialties in the field of anesthesia. Students will be introduced to case planning, standards of practice, systematic strategies for pre-anesthetic assessment, and analyzing physiological principles. This course includes state-of-the-art computer simulation to assist in developing the initial skills required for administering anesthesia. Professional development opportunities occur through the attendance of local, state, and national anesthesia meetings. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5410 Advanced Physical Assessment (3)
This course explores advanced health assessment via an extensive health history and physical examination. The course is designed to assist students refine history taking, psychosocial assessment, and physical assessment skills. Content focuses on assessment of individuals throughout the lifespan. Emphasis is placed on detailed health history taking, differentiation, interpretation, and documentation of normal and abnormal findings. The course includes lecture, discussion, and demonstration of history taking and an integrated physical assessment.

BIOL 5450 Basics of Anesthesia (2)
This course is a continuation of BIOL 5400 Introduction to Anesthesia. It is designed to introduce the student to the basic professional aspects of nurse anesthesia practice including professional development, ethical, social, and legal issues. Introduction to the field of anesthesia also includes orientation to the basic physical facility, equipment, fundamental pharmacology, anesthetic techniques, and specialties in the field of anesthesia. Students will be introduced to case planning, standards of practice, systematic strategies for pre-anesthetic assessment, and analyzing physiological principles. This fundamental course begins prior to the start of the clinical practicum and then proceeds in conjunction with BIOL 5600 Clinical Experience I to give students a comprehensive background. This course includes state-of-the-art computer simulation to assist in developing the initial skills required for administering anesthesia. Professional development opportunities occur through the attendance of local, state, and national anesthesia meetings. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5500 Principles of Anesthesia I (3)
This course is the first of two courses designed to introduce the student to the art and science of nurse anesthesia. The course includes discussion of professional aspects and anesthetic principles, and introduction to comprehensive anesthetic planning, monitoring, co-existing disease states, and pharmacology. This course includes discussion of medical and systems management during the administration of anesthesia. It emphasizes the effects of anesthesia on the cardiovascular and respiratory systems. It includes state-of-the-art computer simulation to assist in the integration of didactic content and development of clinical skills. This course is offered in conjunction with BIOL 5710 Clinical Experience II. Professional development opportunities occur through the attendance of local, state, and national anesthesia meetings. Co-requisite: BIOL 5760. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5510 Anesthesia Concepts I (2)
This course continues to build on the foundation provided by the Principles of Anesthesia courses I and II. It includes a presentation of advanced techniques and procedures in anesthesia, specifically in the area of obstetrics. The placement and management of labor epidurals and spinal techniques for Cesarean sections will be discussed and demonstrated. Ultrasound guided techniques will be presented for the difficulty placement scenario. The advanced principles and techniques associated with each of this specialty area of practice will be discussed. The topics are integrated with learning labs, continuing clinical experience in BIOL 6210 Clinical Experience V, and throughout the remainder of the program. State-of-the-
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art computer simulation to assist in the integration of didactic content occurs through the attendance of local, state, and national anesthesia meetings. **Co-requisite**: BIOL 6230. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5550 Anesthesia Concepts II (3)**

This course is an extension of BIOL 5510 Anesthesia Concepts I and includes the presentation of advanced techniques and monitors in anesthesia specifically related to regional and cardiothoracic anesthesia. Advanced concepts and techniques in pain management and critical care management following anesthesia will be discussed. The placement, management, and interpretation of invasive monitors will be discussed. Advanced invasive monitoring techniques are explored and demonstrated to include the use of ultrasound guided techniques. The advanced principles and techniques associated with each of these specialty areas of practice will be discussed. The topics are integrated with learning labs, continuing clinical experiences in BIOL 6210 Clinical Experience V, and throughout the remainder of the program. State-of-the-art computer simulation to assist in the integration of didactic content and clinical skills is included. Professional development opportunities occur through the attendance of local, state, and national anesthesia meetings. **Co-requisite**: BIOL 6240. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5570 Anesthesia Concepts III (2)**

This course is a continuation of Anesthesia Concepts II and includes the presentation of advanced techniques and monitors in anesthesia specifically related to the specialty areas of regional, pediatric, and obstetric anesthesia care. The advanced principles and techniques associated with each of these specialty areas of practice will be discussed. The topics are integrated with learning labs, continuing clinical experiences in BIOL 6210 Clinical Experience V, and throughout the remainder of the program. State-of-the-art computer simulation to assist in the integration of didactic content and clinical skills is included. Professional development opportunities occur through the attendance of local, state, and national anesthesia meetings. **Co-requisite**: BIOL 6280. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5580 Anesthesia Concepts IV (2)**

This course is a continuation of BIOL 5570 Anesthesia Concepts III and includes the presentation of advanced techniques and monitors in anesthesia specifically related to the specialty areas of regional anesthesia techniques, pain management and neuro-anesthesia care. The advanced principles and techniques associated with each of these specialty areas of practice will be presented, discussed, explored and demonstrated through the use of a high-fidelity mannequin and ultrasound. In this course, we will, through the use of ultrasound, evaluate normal anatomy, identify nerve anatomy and learn ultrasound guided techniques. The topics are also integrated with learning labs, workshops, continuing clinical experiences in BIOL 6220 Clinical Experience VI, and throughout the remainder of the program. State-of-the-art computer simulation to assist in the integration of didactic and clinical skills is included. Professional development opportunities occur through the attendance of local, state, and national anesthesia meetings. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5600 Clinical Experience I Beginning Level**

Clinical experiences are designed to provide a progressive and integrative experience that coincides with didactic coursework. The clinical experiences are all supervised, and have been divided into four levels, each building on the experience of the previous level. Nurse anesthesia residents attend state-of-the-art computer simulation activities 10 times to serve as a bridge between the classroom and the clinical experiences. It provides opportunities for skills development as well as management of high-intensity, low-frequency events. This closely supervised experience focuses primarily on the management of ASA I and II patients, although the management of ASA III through V cases may be included. Cases involving invasive monitoring will be scheduled as appropriate. It includes all preanesthetic and patient assessment activities for general, regional, and MAC anesthesia, administration of the anesthetic, and postanesthesia care. A weekly case conference following the clinical experience will assist the nurse anesthesia resident in the integration of academic and clinical content. All case scheduling and management will assist the resident in meeting the guidelines and requirements for the National Certification Examination. **Co-requisite**: BIOL 5550. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5700 Pharmacology I (3)**

This course is the first in a series of three courses which focus on advanced pharmacological concepts in anesthetic administration including pharmacodynamics (pharmacotherapeutics), pharmacokinetics, and the anatomy and physiology of primary inhaled anesthetic agents. Problem-solving applications in the clinical area are utilized especially as they relate to proper drug selection, dose calculation, and administration. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5760 Clinical II Beginning Level**

Clinical experiences are designed to provide a progressive and integrative experience that coincides with didactic coursework. The clinical experiences are all supervised, and have been divided into four levels, each building on the experience of the previous level. Nurse anesthesia residents attend state-of-the-art computer simulation activities 10 times to serve as a bridge between the classroom and the clinical experiences. It provides opportunities for skills development as well as management of high-intensity, low-frequency events. This closely supervised experience focuses primarily on the management of ASA I and II patients, although the management of ASA III through V cases may be included. Cases involving invasive monitoring will be scheduled as appropriate. It includes all preanesthetic and patient assessment activities for general, regional, and MAC anesthesia, administration of the anesthetic, and postanesthesia care. A weekly case conference following the clinical experience will assist the nurse anesthesia resident in the integration of academic and clinical content. All case scheduling and management will assist the resident in meeting the guidelines and requirements for the National Certification Examination. **Co-requisite**: BIOL 5550. **Prerequisite**: Enrollment in the nurse anesthesia program.

**BIOL 5770 Clinical Experience III Beginning Level**

Clinical experiences are designed to provide a progressive and integrative experience that coincides with didactic coursework. The clinical experiences are all supervised, and have been divided into four levels, each building on the experience of the previous level. Nurse anesthesia residents attend state-of-the-art computer simulation activities 10 times to serve as a bridge between the classroom and the clinical experiences. It provides opportunities for skills development as well as management of high-intensity, low-frequency events. This closely supervised experience focuses primarily on the management of ASA I and II patients, although the management of ASA III through V cases may be included. Cases involving invasive monitoring will be scheduled as appropriate. It includes all preanesthetic
and patient assessment activities for general, regional, and MAC anesthesia, administration of the anesthetic, and post-anesthesia care. A weekly case conference following the clinical experience will assist the nurse anesthesia resident in the integration of academic and clinical content. All case scheduling and management will assist the resident in meeting the guidelines and requirements for the National Certification Examination. Co-requisite: BIOL 6270. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5780 Genetics (1)

Presents an overview of human genetics and its relationship to the disease process. Principles of transmission genetics will be covered. Abnormalities of the nervous, cardiac, respiratory, and muscular systems will be addressed. The molecular basis for various inborn errors of cellular activity and how it relates to the delivery of anesthesia will be covered. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5800 Introduction to Research (2)

Focuses on the research process from problem formulation to analysis and interpretation. Quantitative and qualitative methodologies are addressed. The fundamental knowledge needed to plan, implement, and evaluate a research study is provided. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5900 Pathophysiology I (3)

Lecture and discussion of pathologic states common to the surgical population, which may affect the delivery of anesthesia, will be offered. Focus will be on primary disease processes of the nervous, endocrine, and respiratory systems, common therapies, and their relationship to preoperative planning and case management. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 5960 Seminars in Anesthesia/Board Review I (0)

Seminars in anesthesia courses are a compendium of topics utilized to enhance the professional development of the resident registered nurse anesthetist. These seminars are tailored to the adult learner and offer a comprehensive review in preparation for the National Certification Examination offered by the Council on Certification of Nurse Anesthetists following graduation. A combination of presentations, case studies, and problem-based learning will be employed. The student is expected to actively participate in a thorough preparation and review process. State-of-the-art computer simulation to assist in the integration of didactic content and clinical skills is included. Professional development opportunities continue to occur through the attendance of local, state, and national anesthesia meetings. Co-requisite: BIOL 6430. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6100 Pathophysiology II (3)

Continuation of BIOL 5900 Pathophysiology I. Focus will be on primary disease processes of the cardiovascular, renal, and digestive systems, common therapies, and their relationship to preoperative planning and anesthesia case management. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6160 Seminars in Anesthesia/Board Review III (0)

Seminars in anesthesia courses are a compendium of topics utilized to enhance the professional development of the resident registered nurse anesthetist. These seminars are tailored to the adult learner and offer a comprehensive review in preparation for the National Certification Examination offered by the Council on Certification of Nurse Anesthetists following graduation. A combination of presentations, case studies, and problem-based learning will be employed. The student is expected to actively participate in a thorough preparation and review process. State-of-the-art computer simulation to assist in the integration of didactic content and clinical skills is included. Professional development opportunities continue to occur through the attendance of local, state, and national anesthesia meetings. Co-requisite: BIOL 6440. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6200 Pharmacology III (3)

Pharmacology III is the third course in a series emphasizing the pharmacology related to the cardiovascular, respiratory, and endocrine systems. Pharmacology III will also address the nonanesthetic drugs related to the practice of anesthesia. Topics like antibiotic, antifungal, and antiviral therapy, the use of pharmacology in HIV, TB, hepatitis, hematologic, and oncologic disorders will be presented. Dermatologic and gastrointestinal pharmacology will be presented as they relate to anesthesia using the clinical practicum and with special focus on clinical applications. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6220 Clinical Experience IV Intermediate Level (1)

At the intermediate level, the nurse anesthesia resident begins full-time clinical experiences that are designed to provide anesthetic experiences in routine as well as specialty practice settings. These supervised experiences can occur in obstetrics, radiology, pediatrics, cardiothoracic, and neurosurgical procedures. In addition, the nurse anesthesia resident may gain experience in pain management, to include multiple regional techniques and ultrasound guided regional techniques, as well as experiences in the pulmonary clinic, cardiology clinical, intensive care units, and radiology labs. Nurse anesthesia residents will utilize advanced anesthetic management techniques involving medically complex patient management. All case scheduling...
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will lead toward the requirements for the National Certification Examination. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6230 Clinical Experience V Intermediate Level
At the intermediate level, the nurse anesthesia resident begins full-time clinical experiences that are designed to provide anesthetic experiences in routine as well as specialty practice settings. These supervised experiences can occur in obstetrics, radiology, pediatrics, cardiothoracic, and neurosurgical procedures. In addition, the nurse anesthesia resident may gain experience in pain management, to include multiple regional techniques and ultrasound guided regional techniques, as well as experiences in the pulmonary clinic, cardiology clinical, intensive care units, and radiology labs. Nurse anesthesia residents will utilize advanced anesthetic management techniques involving medically complex patient management. All case scheduling will lead toward the requirements for the National Certification Examination. Co-requisite: BIOL 5510. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6240 Clinical Experience VI Intermediate Level
At the intermediate level, the nurse anesthesia resident begins full-time clinical experiences that are designed to provide anesthetic experiences in routine as well as specialty practice settings. These supervised experiences can occur in obstetrics, radiology, pediatrics, cardiothoracic, and neurosurgical procedures. In addition, the nurse anesthesia resident may gain experience in pain management, to include multiple regional techniques and ultrasound guided regional techniques, as well as experiences in the pulmonary clinic, cardiology clinical, intensive care units, and radiology labs. Nurse anesthesia residents will utilize advanced anesthetic management techniques involving medically complex patient management. All case scheduling will lead toward the requirements for the National Certification Examination. Co-requisite: BIOL 5550. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6255 Cellular Biology (3)
Covers fundamental concepts of the structure and function of human cells. The course begins with a light microscope study of tissue cells and an electron micrograph study of specific cells; followed by a study of organelle function; and ending with cellular perspectives on the nervous system, immunology, and cancer as they relate to anesthesia. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6260 Seminars in Anesthesia/Board Review IV (0)
Seminars in anesthesia courses are a compendium of topics utilized to embellish the professional development of the resident registered nurse anesthetist. These seminars are tailored to the adult learner and offer a comprehensive review in preparation for the National Certification Examination offered by the Council on Certification of Nurse Anesthetists following graduation. A combination of presentations, case studies, and problem-based learning will be employed. The student is expected to actively participate in a thorough preparation and review process. State-of-the-art computer simulation to assist in the integration of didactic content and clinical skills is included. Professional development opportunities continue to occur through the attendance of local, state, and national anesthesia meetings. Co-requisite: BIOL 6430. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6270 Principles of Anesthesia II (3)
This course is the continuation of BIOL 5500 Principles of Anesthesia I, and includes an advanced focus in pathophysiology and medical and systems management during anesthesia care. It includes a discussion of advanced anesthetic principles and management of various disease states, emphasizing the effects of anesthesia on the nervous, endocrine, hepatic, renal, and cardiovascular and respiratory systems. It also includes discussion of anesthesia for the trauma patient. This course is offered in conjunction with BIOL 5710 Clinical Experience III. State-of-the-art computer simulation to assist in the integration and development of didactic content and clinical skills is included. Co-requisite: BIOL 5770. Prerequisite: BIOL 5500 Principles of Anesthesia I; enrollment in the nurse anesthesia program.

BIOL 6280 Clinical Experience VII Intermediate Level
At the intermediate level, the nurse anesthesia resident begins full-time clinical experiences that are designed to provide anesthetic experiences in routine as well as specialty practice settings. These supervised experiences can occur in obstetrics, radiology, pediatrics, cardiothoracic, and neurosurgical procedures. In addition, the nurse anesthesia resident may gain experience in pain management, to include multiple regional techniques and ultrasound guided regional techniques, as well as experiences in the pulmonary clinic, cardiology clinical, intensive care units, and radiology labs. Nurse anesthesia residents will utilize advanced anesthetic management techniques involving medically complex patient management. All case scheduling will lead toward the requirements for the National Certification Examination. Co-requisite: BIOL 5570. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6290 Clinical Experience VIII Intermediate Level
At the intermediate level, the nurse anesthesia resident begins full-time clinical experiences that are designed to provide anesthetic experiences in routine as well as specialty practice settings. These supervised experiences can occur in obstetrics, radiology, pediatrics, cardiothoracic, and neurosurgical procedures. In addition, the nurse anesthesia resident may gain experience in pain management, to include multiple regional techniques and ultrasound guided regional techniques, as well as experiences in the pulmonary clinic, cardiology clinical, intensive care units, and radiology labs. Nurse anesthesia residents will utilize advanced anesthetic management techniques involving medically complex patient management. All case scheduling will lead toward the requirements for the National Certification Examination. Co-requisite: BIOL 5570. Prerequisite: Enrollment in the nurse anesthesia program.

BIOL 6300 Epidemiology/Models in Clinical Research (1)
Presents an introduction to principles, methods, and uses of epidemiology. Distribution of populations at high risk, surveillance of health status, planning, evaluation of census, vital data, and health statistics as baseline indices of health status at community, state, and national levels will be presented. Attention will be given to determine the relevance of the findings of epidemiological studies to the clinical practice of anesthesia to individuals, families, groups, and communities.
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BIOL 6310, BIOL 6320, BIOL 6330, BIOL 6340, BIOL 6350 and BIOL 6360 Research/Thesis Project I, II, III, IV, V, VI (1 credit hour each)
The design of this course is progressive, culminating in a master’s thesis/research project. The course offers the student the opportunity to do research under the direction of a member of Webster University faculty. The student will begin with a proposal and progress through research project design, literature search, implementation of the research project, and developing presentation of data from the research. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6370 Research/Thesis Project VII (1)
The design of this course is progressive, culminating in a master’s thesis/research project. The course offers the student the opportunity to do research under the direction of a member of the Webster University faculty. The student will begin with a proposal and progress through research project design, literature search, implementation of the research project, and developing presentation of data from the research. **Prerequisites:** BIOL 6310, BIOL 6320, BIOL 6330, BIOL 6340, BIOL 6350 and BIOL 6360; enrollment in the nurse anesthesia program.

BIOL 6380 Research/Thesis Project VIII
The design of this course is progressive, culminating in a master’s thesis/research project. The course offers the student the opportunity to do research under the direction of a member of the Webster University faculty. The student will begin with a proposal and progress through research project design, literature search, implementation of the research project, and developing presentation of data from the research. **Prerequisites:** BIOL 6310, BIOL 6320, BIOL 6330, BIOL 6340, BIOL 6350, BIOL 6360 and BIOL 6370; enrollment in the nurse anesthesia program.

BIOL 6420 Clinical Experience IX Advanced Level
Clinical experiences at the advanced level continue to be supervised, but the nurse anesthesia resident is expected to demonstrate increasing autonomy and utilize appropriate critical thinking and decision-making skills in the management of all classifications of patients from ASA I-V and emergencies requiring anesthesia care. All case scheduling will lead toward the requirements for the National Certification Examination. **Co-requisite:** BIOL 5960. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6430 Clinical Experience X Advanced Level
Clinical experiences at the advanced level continue to be supervised, but the nurse anesthesia resident is expected to demonstrate increasing autonomy and utilize appropriate critical thinking and decision-making skills in the management of all classifications of patients from ASA I-V and emergencies requiring anesthesia care. All case scheduling will lead toward the requirements for the National Certification Examination. **Co-requisite:** BIOL 6050. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6440 Clinical Experience XI Advanced Level
Clinical experiences at the advanced level continue to be supervised, but the nurse anesthesia resident is expected to demonstrate increasing autonomy and utilize appropriate critical thinking and decision-making skills in the management of all classifications of patients from ASA I-V and emergencies requiring anesthesia care. All case scheduling will lead toward the requirements for the National Certification Examination. **Co-requisite:** BIOL 6160. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6450 Clinical Experience XII Advanced Level
Clinical experiences at the advanced level continue to be supervised, but the nurse anesthesia resident is expected to demonstrate increasing autonomy and utilize appropriate critical thinking and decision-making skills in the management of all classifications of patients from ASA I-V and emergencies requiring anesthesia care. All case scheduling will lead toward the requirements for the National Certification Examination. **Co-requisite:** BIOL 6260. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6460 Neuroendocrinology (3)
Covers the principles of hormonal regulation. Special attention to hormonal mechanisms and action and feedback will be studied. The relationship between the endocrine system and the nervous system will be emphasized regarding receptors related to anesthesia. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6500 Immunology (2)
Covers the structure and function of leukocytes and the classification of antibodies. The principles of immunosuppression and the mechanism of the immune response will be studied for the perianesthetic period. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6600 Microbiology (2)
Focuses on properties of bacteria, viruses, and fungi as well as the pathogen-host interactions. Provides an introduction to the molecular genetics of bacteria and viruses. The relation of these organisms to anesthesia and their control will be explored. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6640 Microbiology II (2)
This course is a continuation of Microbiology. It continues the study of bacteria, viruses, and fungi as well as the pathogen-host interactions. Provides an introduction to the molecular genetics of bacteria and viruses. The relation of these organisms to anesthesia and their control will be explored. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 6650 Developmental Biology (1)
Focuses on the development of the anatomical and physiological process from embryo to newborn. Normal and pathological conditions will be compared, and anesthesia implications will be discussed. **Prerequisite:** Enrollment in the nurse anesthesia program.

BIOL 7200 Advanced Anatomy and Physiology I (4)
Provides the student an opportunity to build upon basic knowledge of the anatomy and physiology of cells, tissues and blood and the following systems: musculoskeletal, neuroendocrine and respiratory systems and their applicability to anesthesia and acute care. A review of cell physiology is followed by in-depth analysis of muscular, nervous and circulatory systems. Gross anatomy includes study of head and neck and thorax. The student engages in critical thinking regarding the effects of anesthetics on physiologic functions and their relation to the client’s state of health/wellness as it interacts with the culturally diverse population in the twenty-first century.
BIOL 7500 Immunology (3)
Examines cellular structure and function in both white blood cells and lymphocytes. This course provides the foundation for understanding modes of cellular communication between immune cells and antigens, allergens and pathogens. Examination of the innate and Adaptive immunity, differences between them, their function and diseases associated with each.

BIOL 7600 Cell Biology (3)
Covers fundamental concepts of the structure and function of human cells. The course begins with a light microscope study of tissue cells and an electron micrograph study of specific cells; followed by a study of organelle function; and ending with cellular perspectives on the nervous system, immunology and cancer as they relate to anesthesia.

BIOL 7700 Genetics (1)
Presents an overview of human genetics and its relationship to the disease process. Principles of transmission genetics will be covered. Abnormalities of the nervous, cardiac, respiratory and muscular systems will be addressed. The molecular basis for various inborn errors of cellular activity and how it relates to the delivery of anesthesia will be covered.

BIOL 7800 Microbiology (3)
Microbiology focuses on properties of bacteria, viruses and fungi as well as the pathogen-host interactions. This course is an introduction to the molecular genetics of bacteria and viruses. The relation of these organisms to anesthesia and their control will be explored.

BIOL 8000 Advanced Anatomy and Physiology II (4)
Provides the student an opportunity to continue building upon basic knowledge of the anatomy and physiology of the cardiovascular, digestive, hepatic, reproductive and renal systems, with particular reference to anesthesia and acute care management. An in-depth analysis will be made of the cardiovascular system. The student engages in critical thinking regarding the effects of anesthesia on normal physiologic functions of the cardiovascular and renal systems. This course is a continuation of gross anatomy study of thorax and abdominal and pelvic regions. Prerequisite: BIOL 7200.

BIOL 8100 Advanced Anatomy and Physiology III (4)
This course is a continuation of Anatomy and Physiology II. It continues to explore the topics of the cardiovascular, digestive, hepatic, reproductive and renal systems, with particular reference to anesthesia and acute care management. An in-depth analysis will be made of the cardiovascular system. The student engages in critical thinking regarding the effects of anesthesia on normal physiologic functions of the cardiovascular and renal systems; a continuation of gross anatomy study of thorax and abdominal and pelvic regions. Prerequisite: BIOL 8000.

BIOL 8400 Advanced Pathophysiology (3)
Lecture and discussion of pathologic states common to the surgical population, which may affect the delivery of anesthesia, will be offered. Focus will be on primary disease processes of the nervous, endocrine and respiratory systems, common therapies and their relationship to preoperative planning and case management.