Master of Health Science in Anesthesia – Foundation Phase

Foundation I		
Class Number	**Class name**	**Credit hours**
ANE 5004	Human Form & Function: Pharmacology for Anesthesia	4
ANE 5014	Human Form & Function: Human Physiology	4
ANE 5024	Human Form & Function: Clinical Anatomy	4
ANE 5044	Basic Technical Skills & Patient Assessment	4
ANE 5901	Comprehensive Competency Examination I & II (N/NP)	1
ANE 5054	Technology & Monitoring in Anesthesia	4
ANE 5061	Cardiac Electrophysiology	1
ANE 5081	Themes in Anesthesia: Professionalism & Servant Leadership	1
ANE 5807	Foundations of Clinical Anesthesia (Early Clinical Experience)	7
ANE 5911	Comprehensive Competency Examination III (N/NP)	1
ANE 5151	Themes in Anesthesia II: Health Equity & Access to Care	1
Foundation II		
ANE 5103	Pathophysiology for Anesthesia	3
ANE 5113	Applied Physiology for Anesthesia	3
ANE 5123	Anesthesia & Co-Existing Diseases	3
ANE 5133	Anesthesia Principles & Practices	3
ANE 5144	Advanced Technical & Non-Technical Skills	4
ANE 5921	Comprehensive Competency Examination IV & V (N/NP)	1
ANE 5211	Themes in Anesthesia III: Patient Satisfaction & Customer Service	1
ANE 5161	Human Factors & Decision Making	1

*CCES do not count towards GPA.

Course Descriptions – Master of Health Science in Anesthesia

- **(ANE 5004) Human Form & Function - Pharmacology for Anesthesia: 4 credit hours**
  The course introduces students to the study of pharmacology with clinical applications. Emphasis has been placed on integrating clinical therapeutics for various anesthesia medications, as well as on the basic principles and pharmacologic properties of clinically relevant medications. The course content provides an opportunity for students to deepen their understanding of the clinical use of medications. This course introduces basic principles of pharmacology and focuses on those drugs most often used in the practice of anesthesia, including inhaled anesthetics, opioids, barbiturates, benzodiazepines, anticholinesterases and anticholinergics, neuromuscular blockers, and adrenergic agonists and antagonists. The course provides an overview of drug actions, interactions, metabolism, methods of administration, dosages, side effects, precautions, and contraindications. This course focuses on the pharmacokinetics and pharmacodynamics of major drug classifications. Their interactions with anesthetic agents are discussed. Basic principles of drug action: absorption, distribution, metabolism, and excretion of drugs; mechanisms of drug action; toxicity. Basis for the use of medicines in pharmacologic therapy of specific diseases.

- **(ANE 5014) Human Form & Function - Human Physiology: 4 credit hours**
  Human physiology seeks to understand the mechanisms that work to keep the human body alive and functioning through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed. The principal level of focus of physiology is at the level of organs and systems within systems. As a detailed study of the functioning, integration, and interrelationships of organ systems, this course is designed to provide the student with the essential and fundamental concepts in medical physiology for a career in healthcare. This information will be categorized into six sections within one block, covering Cell & Muscle Physiology, Autonomic & Endocrine Regulation of Body Systems, Cardiovascular Physiology, Pulmonary, Gastrointestinal, Renal, and Reproductive Physiology.

- **(ANE 5024) Human Form & Function - Clinical Anatomy: 4 credit hours**
  This course teaches students the structures of the human body, including surface anatomy and diagnostic imaging, through the regional study of prosected systems. Utilizing lectures, discussion, models and prosected cadavers, students will have a structural introduction to the organ systems of the thorax, head and neck, abdomen, and pelvic vault. Upon completion of the course, students will be able to identify normal anatomical structures, recognize abnormal anatomy, and determine the clinical implications of pathologic anatomy.

- **(ANE 5044) Basic Technical Skills & Patient Assessment: 4 credit hours**
  This is an anesthesia laboratory in which we will begin our basic anesthesia concepts and skills. This course will incorporate all anesthesia classroom knowledge into the clinical setting, as well as provide hands-on work to learn our anesthesia skills. The knowledge base for this class includes the information learned in Intro to Clinical Anesthesia, Airway Management, Medical Terminology, Anatomy, and Physiology. Skills learned in this class will be necessary for your introduction into your clinical anesthesia rotations, where you will be performing all skills learned in this semester's lab. The skills learned are: (1) airway management, including endotracheal intubation and laryngeal mask airway insertion; (2) anesthesia machine checkout; (3) patient monitoring; (4) intravenous insertion and management; and (5) patient positioning. This course provides students with the tools to conduct a comprehensive medical interview. Students will learn effective

methods for obtaining and documenting historical information, developing communication skills with patients and healthcare providers, and providing patient counseling through lectures, case discussions, simulations, and standardized patients. This course also provides students with the skills to perform a complete physical examination essential to patient evaluation and anesthetic management. Students will learn critical thinking skills, physical examination techniques, and interpretation and documentation of medical findings through participation in laboratory sessions, patient simulations, and small group discussions. Basic Life Support (BLS), Advanced Life Support (ACLS), and Pediatric Advanced Life Support (PALS) certification is required for course completion.

- **(ANE 5901) Comprehensive Competency Examination I & II: 1 credit hour**
  In its entirety, this course will provide a complete review of current anesthesia practice. The Comprehensive Competency Examinations (CCE) are administered at ten (10) intervals throughout the Anesthesiologist Assistant Program. These examinations serve to ensure continued development of the core fundamentals of anesthetic knowledge, retention of previously introduced concepts and assimilation of the didactic curriculum into clinical practice. The student will be expected to demonstrate depth and breadth of knowledge of anesthesia practice. The examination will also serve as a guide to relevant study material for the student prior to sitting for his or her national certification examination administered by the National Commission on the Certification of Anesthesiologist Assistants (NCCAA).

- **(ANE 5054) Technology & Monitoring in Anesthesia: 4 credit hours**
  Students are taught the proper balance among circuits, engineering concepts, and the clinical application of anesthesia instrumentation. Monitors and devices used in the operating room are studied with respect to principles of operation, calibration, and data interpretation. Principles, application, and interpretation of various monitoring modalities, including ECG, invasive and non-invasive blood pressure, oximetry, cardiac output, respiratory gas analysis, and respiration. Also includes intraoperative neurophysiology monitoring, temperature, renal function, coagulation/hemostasis, neuromuscular junction, transesophageal echocardiography, and ICP. The course covers advanced concepts of arterial pressure monitoring, ICP monitoring, transesophageal echocardiography, electric and radiation safety, and the hazards and complications of monitoring patients during anesthesia. The course introduces the physical principles and their clinical application in anesthesia. Measurement and monitoring are key elements of anesthesia for the Anesthesiologist Assistant. Topics covered will include fluid and gas laws, strain, and pressure, imaging metrics, ionizing radiation and radiation safety, radioactivity, radiation therapy, computed tomography, nuclear medicine, ultrasound, and magnetic resonance imaging.

- **(ANE 5061) Cardiac Electrophysiology: 1 credit hour**
  Acquiring a deeper understanding of the cardiovascular system and how it functions, students will practice basic electrocardiograph patient care techniques, applying legal and ethical responsibilities. Students learn the use of medical instrumentation, electrocardiogram theory, identification of and response to mechanical problems, recognition of cardiac rhythm, and response to emergency findings. This course is designed to meet the needs of students who desire the ability to interpret resting normal and abnormal ECGs, as well as to provide an overview of heart anatomy, function, and neurophysiology. Coursework includes basic and advanced ECG interpretation using simulators to understand an overview of heart anatomy, function, and electrophysiology. Diagnosis and practical applications of electrocardiography and echocardiography as monitoring techniques in the operating room will be emphasized.

- **(ANE 5081) Themes in Anesthesia I: Professionalism & Servant Leadership: 1 credit hour**
  Themes in Anesthesia I is the first of three Theme weeks during the Foundation Phase of the curriculum, followed by a 'threaded' theme course throughout the Integrative Phase. This course integrates thematic content with an emphasis on core concepts needed for professional clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine, including the themes of diversity, equity, and inclusion, determinants of health, advocacy for the profession, and sub-specialties of anesthesiology. Theme Week I focuses on professionalism and advocacy for the Anesthesiologist Assistant profession and the Anesthesia Care Team. This course exposes students to the societal, regulatory, ethical, and professional aspects of becoming an Anesthesiologist Assistant. Students will learn the history of the AA profession and address specific topics, including professional mobility, governmental funding, healthcare system structure, employment, credentialing, intra-professional communication, leadership, and resources for lifelong learning, all through the lens of servant leadership.

- **(ANE 5807) Foundations of Clinical Anesthesia (Early Clinical Experience): 7 credit hours.**
  This course is a hybrid course that integrates an immersive clinical anesthesia experience and educates the student to work within the anesthesia care team (ACT) as an anesthesiologist assistant (AA). The coursework introduces operating room experiences, with an emphasis on the fundamental procedures and techniques used in administering anesthesia. Prepares and educates the student to work as part of the anesthesia care team. The course includes anesthetic techniques, hazards and complications, universal precautions and infection control, layout of the operating room, sterile fields and techniques, patient interactions, starting intravenous catheters, and application of ASA-standard monitors. Students will use an anesthesia simulator to gain basic knowledge of and practice using monitors. Preoperative assessment, IV placement techniques, airway management, intraoperative patient care, and postoperative management are all emphasized in this course. During the first year of the program, students complete eight weeks of broad education in basic science disciplines relevant to the practice of anesthesiology. This academic year, termed the *Foundation Year,* emphasizes the fundamental aspects of anesthesia, including basic physiology and pharmacology, as well as the skills involved in administering anesthesia and in the use of associated invasive and non-invasive monitoring. Much of this year is spent completing the didactic curriculum, with approximately 400 hours of clinical experience in the general operating rooms of adult hospitals. During the Foundation year, students develop knowledge and skills in patient assessment and physical examination, vascular access, and airway management. Clinical experience is intertwined with didactic and simulation-based learning. The Clinical Performance Goals for the Foundation Year are pre-defined and must be satisfactorily completed before promotion to the Integrative Year.

  The Early Clinical Experience (ECE) is a 14-week intensive introduction to the clinical environment, the perioperative setting, and the anesthetic management of patients. The Block begins with a clinical boot camp that ensures student readiness to enter the clinical setting, provides a basic skills and knowledge review, and covers orientation to the perioperative system.

- **(ANE 5911) Comprehensive Competency Examination III: 1 credit hour**
  In its entirety, this course will provide a complete review of current anesthesia practice. The Comprehensive Competency Examinations (CCE) are administered at ten (10) intervals throughout the Anesthesiologist Assistant Program. These examinations serve to ensure the continued development of the core fundamentals of anesthetic knowledge, the retention of previously introduced concepts, and the

assimilation of the didactic curriculum into clinical practice. The student will be expected to demonstrate depth and breadth of knowledge of anesthesia practice. The examination will also serve as a guide to relevant study material for the student prior to sitting for his or her national certification examination administered by the National Commission on the Certification of Anesthesiologist Assistants (NCCAA).

- **(ANE 5151) Themes in Anesthesia II: Health Equity & Access to Care: 1 credit hour.**
  Themes in Anesthesia II is a continuation in the series during the Foundation Phase of the curriculum, followed by a 'threaded' theme course throughout the Integrative Phase. This course integrates thematic content with an emphasis on core concepts needed for professional clinical practice in the changing healthcare environment. Students will explore areas related to humanism in medicine, including the themes of diversity, equity, and inclusion, determinants of health, advocacy for the profession, and sub-specialties of anesthesiology. Theme II focuses on diversity, equity and inclusion in healthcare as well as seeking work-life balance through wellness. But the healthcare industry has a unique opportunity to make a greater impact, as it directly affects a broad range of patient health outcomes and quality of life. The week-long intensive also explores aspects of wellness of mind, body, and spirit with a focus on work-life balance.

- **(ANE 5103) Pathophysiology for Anesthesia: 3 credit hours**
  Pathophysiology is defined as the study of the physiology of altered health. Pathophysiology deals with the study of structural and functional changes in cells, tissues, and organs of the body that cause or are caused by disease. Pathophysiology also focuses on the mechanisms underlying the disease process and provides the background for preventive and therapeutic health care measures and practices. In this course, students will have the opportunity to apply their knowledge of normal physiology to analyze the consequences of pathophysiological processes and apply this analysis to basic diagnostic and treatment principles. Students will also be evaluating current medical advances using the scientific process. This course focuses on the pathophysiology of the human cardiovascular, respiratory, and renal systems, and on how these systems are altered by various physiologic challenges. The concept of homeostasis is integrated with general disease processes such as injury, inflammation, fibrosis, and neoplasia to demonstrate how perturbations in physiological regulatory mechanisms and anatomy lead to pathophysiology. We particularly focus on the effects of stress and obesity on these systems, and on differences between men and women in the manifestation of diseases of these systems.

- **(ANE 5113) Applied Pharmacology & Physiology for Anesthesia: 3 credit hours**
  Anesthesia practice depends on the basic sciences of physiology and pharmacology, and this course summarizes the main aspects of physiology to anesthesiology. While anesthesia is intended to block or diminish the physiologic responses to painful stimuli, as well as the perception of pain, the neurologic effects are not the only important consideration. Circulatory and respiratory effects of anesthesia and perioperative events are also vital concerns. Additionally, interactions with the patient's pathophysiology can crucially affect the anesthetic course. This course offers Basic and applied human systems physiology with emphasis on topics and areas of special concern to the anesthetist. This course has been developed to instruct anesthesiologist assistant students in applying physiology, with a focus on the clinical relevance of human physiology to patients in the perioperative period.

- **(ANE 5123) Anesthesia & Co-Existing Diseases: 3 credit hours**
  The course offers a concise, thorough coverage of the pathophysiology of the most common diseases and their medical management relevant to anesthesia. The primary aim of the course is to provide the guidance

the student needs to successfully manage or avoid complications stemming from pre-existing conditions, with detailed discussions of each disease, the latest practice guidelines, and easy-to-follow treatment algorithms. The course will also present detailed discussions of common diseases, as well as highlights of rarer diseases and their unique features that may be important in the perioperative period, as well as specific anesthesia considerations for special patient populations, including pediatric, obstetric, medically underserved, and elderly patients.

- **(ANE 5133) Anesthesia Principles & Practices: 3 credit hours**
  This course offers a deep dive into specific surgical and procedural specialties to understand the implications on a derivative anesthetic plan. The course culminates in the medical knowledge learned to this point and ties together the knowledge and application domains for anesthetic plan development. Principles involved in the formulation of anesthetic plans based upon data obtained during the preoperative evaluation will be discussed, including the formulation and practices of different anesthetic plans and techniques as related to specific surgical procedures and pathophysiology. Advanced principles of anesthesia equipment, monitoring, documentation, patient assessment, basic patient care, and infection control are examined with detailed studies of anesthetic techniques for different surgical procedures and for patients with acute and chronic diseases. Concepts of perioperative and psycho-social assessment, care plans, and anesthesia techniques are explored in detail.

- **(ANE 5144) Advanced Technical & Non-Technical Skills: 4 credit hours**
  A hybrid course experience in the standardized patient laboratory and anesthesia simulator will prepare the student for the use and complete understanding of monitors and anesthesia practice. Students will apply their didactic knowledge to scenarios on the anesthesia simulator. Patient modalities, such as pulse oximetry, capnography, and blood pressure monitoring systems, are explored. Laboratory experiments will develop students' understanding of anesthesia delivery systems, various types of breathing circuits, the effect of fresh gas flow, the theory of dilutional methods of cardiac output monitoring, and the relationship between mean circulatory filling pressures and central venous pressure. Additionally, the course expands upon the student's skill set of tools to perform a comprehensive health assessment on clients across the lifespan. Builds knowledge of anatomy, physiology, pathophysiology, and health assessment skills previously attained in the curriculum. The diagnostic reasoning skills needed for clinical reasoning in the advanced practice role is emphasized. The ANTS system supplies students with a language for discussing the 'behavioral aspects' of performance. It can be used to assess an individual's behavior, provide input for the training process, and structure feedback on skills development. Instructors utilize simulator techniques to teach advanced principles of anesthesia, including case management, effective communication under stress, diagnosis, and treatment of acute physiologic abnormalities, and support and review of training in BLS and ACLS. A review of critical crisis management and rescue techniques, which are not often seen in practice.

- **(ANE 5921) Comprehensive Competency Examination IV & V: 1 credit hour**
  In its entirety, this course will provide a complete review of current anesthesia practice. The Comprehensive Competency Examinations (CCE) are administered at ten (10) intervals throughout the Anesthesiologist Assistant Program. These examinations serve to ensure continued development of the core fundamentals of anesthetic knowledge, retention of previously introduced concepts, and assimilation of the didactic curriculum into clinical practice. The student will be expected to demonstrate depth and breadth of knowledge of anesthesia practice. The examination will also serve as a guide to relevant study material for

the student prior to sitting for his or her national certification examination administered by the National Commission on the Certification of Anesthesiologist Assistants (NCCAA).

- **(ANE 5161) Human Factors & Decision-Making: 1 credit hour**
  Healthcare is a high-stakes industry prone to crises; this is especially true for acute care specialties such as anesthesiology and emergency medicine, where healthcare practitioners must treat critically ill patients amid diagnostic ambiguity, resource limitations, and numerous disruptions in chaotic work environments. To deliver safe and effective patient care, Anesthesiologist Assistants must execute highly coordinated team-based strategies. Crisis resource management (CRM) refers to a set of principles dealing with cognitive and interpersonal behaviors that contribute to optimal team performance. This course is designed around a two-fold objective: (1) understanding how human factors can improve patient safety; and (2) how to mitigate errors in anesthesia care through an appreciation for how they occur and how human providers react in a crisis. Human factors is the study of how humans behave and interact with one another and their surroundings. It considers how humans interact in the perioperative workplace and how, due to the inevitability of human error, mistakes are likely to occur. In this course, you will look at human factors in a healthcare environment, an area where it is vital to limit mistakes because human error can affect patient safety. Students will learn about systems that pre-empt the inevitability of human error and can help improve clinical practice and patient safety.

- **(ANE 5211) Themes in Anesthesia III – Patient Satisfaction & Customer Service: 1 credit hour**
  Themes in Anesthesia III is a continuation in the series during the Foundation Phase of the curriculum, followed by a 'threaded' theme course throughout the Integrative Phase. This course integrates thematic content with an emphasis on core concepts needed for professional clinical practice in the changing healthcare environment. In this section, students will explore an intensive instruction in the anesthesiology specialty areas of critical care, regional anesthesia, and pain medicine. The Theme III concentration areas are grouped together as important components of the Perioperative Surgical Home, focusing on efficiency of care, patient safety, and transitions of care. Students explore the principles and concepts of customer service through directed study of service industries and learn how to apply the concepts to healthcare and patient satisfaction.

Anesthesiologist Assistant Program – Integrative Phase

The MHSA Program has developed a curriculum model that provides an academic environment within the community-based hospital and outpatient anesthesiology practices. The purpose of clinical rotations is to provide the student with a broad foundation for general anesthesiology and perioperative practice. Each rotation is accompanied by a curriculum delivered in a case-based format and reading assignments to ensure consistency of learning of the required content. The curriculum also includes monthly didactic presentations and student case presentations/discussions, with students from other health professions attending. Thematic content related to servant leadership, quality improvement, and professionalism is integrated throughout the clinical curriculum, including weekly web-based presentations, monthly workshops, and website materials. Students are evaluated through clinical faculty observations of competencies and computer-based comprehensive competency exams.

The Program partners with community-based hospitals and anesthesiology practices in the target Appalachian and Delta regions of the Southeastern United States, with a primary focus on Alabama, Georgia, and the Carolinas. In fitting with the mission of the Program, partner hospitals that range in size from 100 to 500 beds or those that are in urban or suburban areas are balanced with ambulatory medical practice experience and rural hospital, rural clinic, or medically underserved regional practice experiences. The blend of training in rural and medically underserved settings, along with training in the larger community-based hospital, provides students with a one-on-one experience with the teaching anesthesia personnel, which resembles the more traditional formal hospital service-based education seen in hospitals where residencies most often exist. Throughout the Integrative Phase, student assessment of learning progression is provided through high-fidelity simulation models, including crisis resource management, non-technical skills, and interdisciplinary experiences.

The final block of the curriculum is designed as a transition to practice; an exciting time when students may direct much of their clinical rotations to areas of interest or where they wish to improve their knowledge and skills. The Program attempts to provide students with the maximum amount of flexibility to schedule rotations that will enhance their anesthesia education and meet employment interests.

The choices within the Program's core clinical sites and among rotations available to senior students are more expansive than in the Foundation Phase or early in the Integrative Phase. Exceptions may be granted when a student wishes to experience a rotation in which graduate medical education is offered and the Assistant Program Director for Clinical Affairs approves the rotation as appropriate for the student. Important within learning to work as a part of a healthcare team is working with practitioners from various specialties and learning the importance of patient handoffs. Integrative Phase students are allowed up to three electives in sites other than Program core sites.

Elective rotations are provided for three purposes: professional development, employment auditions, and expanding the students' clinical knowledge. The Program recommends four-week rotations in general for electives, but recognizes there are a few rotations that are only offered for two weeks. While the Program does not endorse two-week clinical experiences, it does allow some two-week electives when students are only offered two-week options by the clinical sites. It is difficult for a student to learn the hospital system and compete with only a two-week experience. Therefore, the Program recommends four-week experiences for all rotations done with clinical sites the student is considering, when the site offers a four-week program.

Online syllabi for the most common specialty rotations, developed by Clinical Affairs, are provided in the course syllabus to guide students' study focus for each rotation and help them identify the appropriate core objectives to learn

while on their clinical rotations.

Simulation-based learning and assessment are integrated into the Integrative Phase curriculum to ensure students continue to develop their clinical skills and ability to apply anesthetic principles and practices in the provision of high-quality patient care. The program outcomes and professional competencies are integrated into each syllabus and students must attend all weekly virtual presentations, monthly workshops, and online coursework throughout the Integrative Phase.

Master of Health Science in Anesthesia – Integrative Phase

Integrative I		
Class number	**Class name**	**Credit hours**
ANE 5817	Clinical Practicum II	7
ANE 5931	Comprehensive Competency Examination VI & VII	2
ANE 5921	Research Methods	1
ANE 5836	Clinical Practicum III	6
ANE 5941	Comprehensive Competency Examination VIII	1
ANE 5331	Health Care Quality Improvement	1
ANE 5821	Capstone Project I	1
Integrative II		
ANE 5856	Clinical Practicum IV	6
ANE 5951	Comprehensive Competency Examination IX	1
ANE 5842	Capstone Project II	2
ANE 5866	Clinical Practicum V	6
ANE 5221	Professional, Ethical & Legal Concepts in Anesthesia	1
ANE 5961	Certification Exam Preparation: Comprehensive Competency Examination X	1
	Total Credit Hours Program	88

Course Descriptions – Master of Health Science in Anesthesia

Courses:

- **(ANE 5817) Clinical Practicum II: 7 credit hours**
  Both clinical and non-clinical learning activities during the Integrative Year are based upon a philosophy of increasingly self-directed learning. The didactic lectures are presented in a seminar format directed toward a critical review of literature on selected topics. The Block clinical exposure is primarily spent in general anesthesia rotations, but advanced student standing may allow some exposure to specialty areas of care. At the discretion of the Medical Directors, all students in good standing are given the opportunity to undertake satellite elective months. During the entire Integrative Phase, students are permitted to complete up to three (3) elective satellite rotations. Additionally, students may voluntarily utilize their vacation time between the fall and winter semesters for additional satellite rotations.

- **(ANE 5932) Comprehensive Competency Examination VI & VII: 1 credit hour**
  In its entirety, this course will provide a complete review of current anesthesia practice. The Comprehensive Competency Examinations (CCE) are administered at ten (10) intervals throughout the Anesthesiologist Assistant Program. These examinations serve to ensure continued development of the core fundamentals of anesthetic knowledge, retention of previously introduced concepts, and assimilation of the didactic curriculum into clinical practice. The student will be expected to demonstrate depth and breadth of knowledge of anesthesia practice. The examination will also serve as a guide to relevant study material for the student prior to sitting for his or her national certification examination administered by the National Commission on the Certification of Anesthesiologist Assistants (NCCAA).

- **(ANES 5921) Research Methods: 1 credit hour**
  The course will provide an overview of the key concepts in research design, data collection, statistical and interpretive analysis, and final report presentation. The focus of the course is not on mastery of statistics but on the ability to use research in the clinical anesthesia environment. The course uses systematic inquiry and analysis while reinforcing the problem-solving method and uses research in the improvement of healthcare practice to affect positive outcomes. The course focuses on the fundamentals of the research process, namely research ethics, qualitative research methods, and non-experimental methods. Students are taught how to use statistics to answer questions and how to use this skill to aid in the review and interpretation of healthcare literature and research.

- **(ANE 5836) Clinical Practicum III: 6 credit hours**
  Both clinical and non-clinical learning activities during the Integrative Year are based upon a philosophy of increasingly self-directed learning. The didactic lectures are presented in a seminar format directed toward critical review of literature on selected topics. The Block clinical exposure is primarily spent in subspecialty anesthesia rotations, including pediatrics, cardiothoracic, neurosurgery, obstetrics, critical care and Perioperative Surgical Home. At the discretion of the Medical Directors, all students in good standing are given the opportunity to undertake satellite elective months. During the entire Integrative Phase, students are permitted to complete up to three (3) elective satellite rotations. Additionally, students may voluntarily utilize their vacation time between the fall and winter semesters for additional satellite rotations.

- **(ANE 5941) Comprehensive Competency Examination VIII: 1 credit hour**
  In its entirety, this course will provide a complete review of current anesthesia practice. The Comprehensive Competency Examinations (CCE) are administered at ten (10) intervals throughout the Anesthesiologist Assistant Program. These examinations serve to ensure continued development of the core fundamentals of anesthetic knowledge, retention of previously introduced concepts and assimilation of the didactic curriculum into clinical practice. The student will be expected to demonstrate depth and breadth of knowledge of the practice of anesthesia. The examination will also serve as a guide to relevant study material for the student prior to sitting for his or her national certification examination administered by the National Commission on the Certification of Anesthesiologist Assistants (NCCAA).

- **(ANE 5821) Capstone Project I: 1 credit hour**
  In this course the student will learn about the importance of quality in healthcare and how they can contribute by implementing a project to improve processes of care and patient outcomes. The student will learn the steps in the QI process during short lectures and reflective exercises then will identify a clinically relevant project to address or a personal improvement project and apply the QI tools. The QI project will be considered within the context of inter-professional teams and from a systems perspective. Care environments are complex settings and call for a sophisticated set of collaborative teamwork skills and systems thinking. This course provides students with the opportunity to develop critical thinking and problem-solving skills. Students will learn how to connect the knowledge and attitudes developed in behavioral, basic, and clinical science courses to patient care. Increasing student capacity to seek and apply knowledge as individual problem solvers and members of a health care team are key to this course. The Project is a culminating activity that provides a way for students to demonstrate the knowledge and skills they acquired throughout the Program. It engages students in a project/experience that focuses on an interest relative to healthcare delivery, quality improvement, or coordinated perioperative care that synthesizes didactic study and real-world perspective.

- **(ANE 5332) Health Care Quality Improvement: 2 credit hours**
  In this course, students will acquire knowledge of specific ways to transform practice and improve health care. Upon successful completion of the course, students will be eligible for certification through the Institute for Healthcare Improvement (IHI). The course modules address patient safety, health care leadership, the Triple Aim, patient safety, quality improvement, and patient-focused care. The first half of the course introduces patient safety, discusses the relationship between error and harm, explores how human factors affect safety, emphasizes the importance of teamwork and communication in delivering safe care, and explains how to respond to adverse events. The latter course content focuses on the challenges to continuous quality improvement, the model for improvement, approaches to implementing change, how to test and measure changes in the PDSA cycle, how to interpret quality improvement data, and how to lead quality improvement initiatives. The course also touches on patient-centered care, addressing implicit bias, the components of empathy, and effective communication; the Triple Aim for populations; what contributes to population health; and the importance of providing a high-value health care system. Students will be prepared to exhibit leadership in quality improvement, describe the characteristics of effective leadership, and practice different approaches to implement changes.

- **(ANE 5856) Clinical Practicum IV: 6 credit hours**
  Both clinical and non-clinical learning activities during the Integrative Year are based upon a philosophy of

increasingly self-directed learning. The didactic lectures are presented in a seminar format directed toward critical review of literature on selected topics. The Block clinical exposure is primarily spent in subspecialty anesthesia rotations, including pediatrics, cardiothoracic, neurosurgery, obstetrics, critical care, and Perioperative Surgical Home. At the discretion of the Medical Directors, all students in good standing are given the opportunity to undertake satellite elective months. During the entire Integrative Phase, students are permitted to complete up to three (3) elective satellite rotations. Additionally, students may voluntarily utilize their vacation time between the fall and winter semesters for additional satellite rotations.

- **(ANE 5842) Capstone Project II: 2 credit hours**
  This is a continuation of Capstone I and focuses on developing and presenting the Capstone Project. With the guidance of a faculty advisor, each student completes an approved master's paper during the final nine months of the clinical phase of the Program. Completion of this learning activity serves to deepen the students' fund of knowledge as well as promote the development of critical thinking abilities through critical analysis of current literature and exploration of key anesthesia care issues. Emphasis is placed on enhancing students' ability to communicate with precision, cogency, and force in both written and oral forms. Satisfactory completion of the capstone project is a final requirement of the MHSA degree. Conducting actual scientific research is not mandatory, but highly recommended. An in-depth review of the primary literature on a faculty-approved anesthetic topic is required. The project should be a systematic investigation of a topic in anesthesia and demonstrate the ability to critically analyze and integrate pertinent literature. The final paper must be considered suitable for publication in a refereed professional journal.

- **(ANE 5951) Comprehensive Competency Examination IX: 1 credit hour**
  In its entirety, this course will provide a complete review of current anesthesia practice. The Comprehensive Competency Examinations (CCE) are administered at ten (10) intervals throughout the Anesthesiologist Assistant Program. These examinations serve to ensure continued development of the core fundamentals of anesthetic knowledge, retention of previously introduced concepts, and assimilation of the didactic curriculum into clinical practice. The student will be expected to demonstrate depth and breadth of knowledge of anesthesia practice. The examination will also serve as a guide to relevant study material for the student prior to sitting for his or her national certification examination administered by the National Commission on the Certification of Anesthesiologist Assistants (NCCAA).

- **(ANE 5866) Clinical Practicum V: 6 credit hours**
  Both clinical and non-clinical learning activities during the Integrative Year are based upon a philosophy of increasingly self-directed learning. The didactic lectures are presented in a seminar format directed toward a critical review of literature on selected topics. The Block clinical exposure is primarily spent in subspecialty anesthesia rotations, including pediatrics, cardiothoracic, neurosurgery, obstetrics, critical care, and Perioperative Surgical Home. At the discretion of the Medical Directors, all students in good standing are given the opportunity to undertake satellite elective months. During the entire Integrative Phase, students are permitted to complete up to three (3) elective satellite rotations. Additionally, students may voluntarily utilize their vacation time between the fall and winter semesters for additional satellite rotations.

- **(ANE 5961) Certification Exam Preparation: 1 credit hour**
  In its entirety, the course will provide a comprehensive review of current anesthesia practice, framed against the primary topic areas of the certification exam administered by the *National Commission for Certification of Anesthesiologist Assistants (NCCAA)*. Students will be provided a thorough update on issues and topics germane

to the professional practice of the AA, including the principles of anesthesia, pathophysiology, technology and monitoring, pharmacology, and subspecialty areas of anesthesiology. The course builds off the progressive curriculum-wide comprehensive examinations and provides a culminating review of material likely to be addressed on the national certifying exam.

- **(ANE 5221) Professional, Ethical, and Legal Concepts in Anesthesia: 1 credit hour**
  The course begins with a discussion on the basic principles of medical ethics and expands to include major principles and themes in clinical ethics. Topics covered include legal aspects of the doctor-patient relationship, informed consent and competence, privacy issues, end-of-life issues, organ donation, pediatric bioethics, responsible prescribing, and human genetics. Attention is paid to health disparities, the difficulties related to developing normative ethical arguments in a multicultural context, and the role a physician plays as a patient advocate. The course concludes by highlighting the ethical dilemmas that arise when encountering hidden values in the clinical setting.