

## *Master of Health Science in Anesthesia – Foundation Phase*

<b>Foundation I</b>		
<b>Block 1: Basic Science of Medicine</b>		
<b>Class Number</b>	<b>Class name</b>	<b>Credit hours</b>
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 5033	Physics for Clinical Science	3
ANE 5013	Topics in Health Policy, Law & the Business of Medicine	3
ANE 5043	Basic Technical Skills of the Anesthetist	3
ANE 5902	Comprehensive Competency Examination I & II	2
ANE 5053	Technology & Monitoring in Anesthesia	3
ANE 5062	Cardiac Electrophysiology	2
ANE 5073	Patient Evaluation & Physical Assessment	3
ANE 5081	Themes in Anesthesia: Professionalism & Servant Leadership	1
<b>Total Credit Hours Block 1</b>		<b>32</b>
<b>Block 2: Clinical Immersion</b>		
ANE 5093	Foundations of Clinical Anesthesia	3
ANE 5804	Clinical Practicum I	4
ANE 5911	Comprehensive Competency Examination III	1
ANE 5151	Themes in Anesthesia II: Diversity, Equity & Inclusion	1
<b>Total Credit Hours Block 2</b>		<b>9</b>
<b>Foundation II</b>		
<b>Block 3: Foundation of Anesthesia</b>		
ANE 5103	Pathophysiology & Disease Processes	3
ANE 5113	Applied Physiology for Anesthesia	3
ANE 5123	Anesthesia & Co-Existing Diseases	3
ANE 5133	Anesthesia Principles & Practices	3
ANE 5332	Health Care Quality Improvement	2
ANE 5143	Patient Optimization & Advanced Technical Skills	3
ANE 5922	Comprehensive Competency Examination IV & V	2
ANE 5211	Themes in Anesthesia III: Specialties of Anesthesiology	1
ANE 5162	Anesthesia Crisis Resource Management	2
ANE 5173	Anesthesia Non-Technical Skills	3
<b>Total Credit Hours Block 3</b>		<b>25</b>
<b>Total Credit Hours Foundation</b>		<b>66</b>

## *Course Descriptions – Master of Health Science in Anesthesia*

### *Year 1 – Block 1 – Basic Science of Medicine*

#### **Courses:**

- **(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 the integration of clinical therapeutics of various anesthesia medications as well as 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 cell 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 within the human body; to include surface anatomy and diagnostic imaging, through regional study of prosected systems of the body. 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 5033) Physics for Clinical Science: 3 credit hours**  
An introductory course to the physical principles and their clinical application in anesthesia. The course gives a firm grounding, avoiding complex mathematics and irrelevant detail. Measurement and monitoring are a key element 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 5303) Topics in Health Policy, Law & the Business of Medicine: 3 credit hours**  
Future health professionals must obtain the knowledge and skills necessary to be competent practitioners. However, success also requires knowledge of the structure of the health system and health policies that impact patient care and health outcomes. Therefore, future health care professionals must understand how system issues and policies impact the delivery of patient care and the ability of patients to receive care. Also, medical professionals can serve as advocates for their patients and professions and understand the development of health policy and the characteristics and goals of effective health policy.
- **(ANE 5043) Basic Technical Skills of the Anesthetist: 3 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.
- **(ANE 5902) Comprehensive Competency Examination I & II: 2 credit hours**  
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 5053) Technology & Monitoring in Anesthesia: 3 credit hours**  
Students are taught the proper balance between circuits and 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 interpretation of data. 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.
- **(ANE 5062) Cardiac Electrophysiology: 2 credit hours**  
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 fill the needs of students who desire the ability to interpret the resting normal and abnormal ECG, as well as 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 5073) Patient Evaluation & Physical Assessment: 3 credit hours**  
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.
- **(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 coming 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.

## Year 1 – Block 2 – Early Clinical Experience (ECE)

**Block 2 – The Clinical Immersion** is a sixteen-week intensive introduction to the clinical environment, the perioperative setting and anesthetic management of the patient. The Block begins with a clinical boot camp that ensures student readiness to enter the clinical setting, provides basic skill and knowledge review, and covers topics of orientation to the perioperative system.

### Courses:

- **(ANE 5093) Foundations of Clinical Anesthesia: 3 credit hours**  
This course is a hybrid course, integrating immersive experience in clinical anesthesia and educates the student to work within the anesthesia care team (ACT) as an anesthesiologist assistant (AA). The coursework focuses on an introduction to experiences in the operating room with emphasis on the fundamental procedures and techniques used in administering an anesthetic. Prepares and educates the student to work within the anesthesia care team. The course includes a anesthetic techniques, hazards and complications, universal precautions and infection control, layout of the operating room, sterile fields and techniques, interacting with patients, starting intravenous catheters, and application of ASA-standard monitors. Students will utilize anesthesia simulator to gain the basic knowledge and usage of monitors. Preoperative assessment, IV placement techniques, airway management, intraoperative patient care and postoperative management are all emphasized in this course. Basic Life Support (BLS), Advanced Life Support (ACLS) and Pediatric Advanced Life Support (PALS) certification is required for course completion.
- **(ANE 5804) Clinical Practicum I: 4 credit hours**  
During the first year of the program curriculum students encounter 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, and the skills involved in the administration of anesthesia and associated invasive and non-invasive monitoring. Much of this year is spent completing the didactic curriculum, with approximately 300 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 and optimization, 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 prior to student promotion to the Integrative Year.
- **(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 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 5151) Themes in Anesthesia II: Diversity, Equity, and Inclusion: 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. Healthcare professionals have a growing responsibility to improve diversity, equity, and inclusion (DEI) efforts not only for their employees, but also to better serve patients and their families. DEI has been a recent focus for many businesses and organizations across the world. But the healthcare industry has a particularly unique opportunity to make a greater impact, as it directly affects a broad set of patient health outcomes and quality of life in a profound way. The week-long intensive also explores aspects of wellness of mind, body, and spirit with a focus on work-life balance.

## Year 1 – Block 3 – Foundations of Anesthesia

**Block 3 – The Foundations of Anesthesia** is a comprehensive system-based block that integrates basic science and anesthesia curriculum to provide the student with the medical knowledge to understand the normal structure and function of the systems, to address maintaining the health of the patient undergoing surgical procedure, and to address the most common medical and surgical conditions that occur. The block also includes structural treatments to restore the normal movement and function, surgical procedures required to correct certain abnormalities, and pharmacologic treatment where required.

### Courses:

- **(ANE 5103) Pathophysiology & Disease Processes: 3 credit hours**  
Pathophysiology is defined as 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 of the underlying disease process and provides the background for preventative as well as therapeutic health care measures and practices. In this course, students will have the opportunity to apply their knowledge of normal physiology while analyzing the consequences of pathophysiological processes and applying this analysis to basic diagnostic and treatment principles. Students will also be evaluating and analyzing 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 ways in which perturbations in physiological regulatory mechanisms and anatomy result in 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 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 application of physiology with a focus on the clinical relevance of human physiology that pertains to patients in the perioperative period.
- **(ANE 5123) Anesthesia & Co-Existing Diseases: 3 credit hours**  
The course offers a concise, thorough coverage of pathophysiology of the most common diseases and their medical management relevant to anesthesia. The primary aim of the course is to provide the guidance to the student needed 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 more rare diseases and their unique features that could be of importance 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 serves as the culmination of medical knowledge learned to this point and ties together 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 5332) Health Care Quality Improvement: 2 credit hours**  
 In this course, students will acquire knowledge of practice transformation in specific ways to improve health care. Upon successful completion of the course, students will be eligible for the Certification in Professional Healthcare Quality (CPHQ) national examination. 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 impact safety, stresses the importance of teamwork and communications 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, interpret quality improvement data, and lead quality improvement initiatives. The course also touches on patient-centered care and includes addressing implicit bias, the components of empathy, and effective communications, 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 5143) Patient Optimization & Advanced Technical Skills: 3 credit hours**  
 A hybrid course experience in the standardized patient laboratory and anesthesia simulator will prepare the student for the usage and complete understanding of the monitors and practice of anesthesia. Students will apply their didactic knowledge to scenarios on the anesthesia simulator. Patient modalities are explored, such as pulse oximetry, capnography, and blood pressure monitoring systems. Laboratory experiments will develop the students understanding of anesthesia delivery systems, various types of breathing circuits, fresh gas flow effect, theory of dilutional methods of cardiac output monitoring, relations between mean circulatory filling pressures and central venous pressure. Additionally, the course expands upon the student 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.



- (ANE 5922) Comprehensive Competency Examination IV & V: 2 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 5162) Anesthesia Crisis Resource Management: 2 credit hours**  
 Healthcare is a high-stakes industry that is prone to crises; this is especially true for acute care specialties such as anesthesiology and emergency medicine, in which healthcare practitioners must treat critically ill patients while facing 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 are the study of how humans behave and interact with each other 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 5173) Anesthesia Non-Technical Skills: 3 credit hours**  
 This course is the practical corollary to ANE 5162 and integrates the principles of crisis resources management through immersive clinical scenarios and formative debrief of student performance. Integrating medical knowledge and clinical skills, non-technical skills should help to support safe and effective performance in everyday tasks and emergency situations. The ANTS premise describes the main observable non-technical skills associated with sound anesthesia fundamentals. The purpose of the system is to provide the Anesthesiologist Assistant student with a framework for describing non-technical skills and a tool to guide their assessment in an explicit and transparent manner. In short, the ANTS system supplies students with a language for discussing the ‘behavioral aspects’ of performance. It can be used for assessing an individual’s behavior, to provide input for the training process, and for structuring feedback on skills development. Instructors utilize simulator technique to teach advanced principles of anesthesia, including case management, effective communication while under stress, diagnosis, and treatment of acute physiologic abnormalities, including support for 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 5211) Themes in Anesthesia III: Specialties of Anesthesiology: 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 in efficiency of care, patient safety, and transitions of care.

## 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 the core clinical rotations is to provide the student with a broad foundation for general anesthesiology and perioperative practice. Each rotation is accompanied by curriculum delivered in case-based format and reading assignments to assure consistency of learning of the required content. The curriculum also includes monthly didactic presentations and student case presentations/discussions where students from other health professions attend. 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 region in the Southeastern United States, with primary focus on Alabama and Georgia. In fitting with 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 resemble the more traditional formal hospital service-based education seen in hospitals where residencies most often exist. Integrative Phase students also have unique global health educational opportunities by utilizing an elective opportunity to spend four weeks in the Dominican Republic, Honduras, or El Salvador for a global health clinical experience. 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 constructed as a transition to practice; an exciting time wherein students may direct much of their clinical rotations to areas of interest or areas 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. The sites include additional sites where Program affiliated rotations exist or within the expansive clinical partner network whom with the MHSA Program carries affiliation agreements. Exceptions may be granted when a student wishes to experience a rotation where graduate medical education exists and if 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 student's clinical knowledge. The Program recommends four-week rotations in general for electives but recognize there are a few rotations that are only offered for two weeks. While the Program does not endorse two-week clinical experiences, the Program does allow some two-week electives when students are only provided with two-week options by the clinical sites. It is difficult for a student to learn the hospital system and be competitive 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 the Clinical Affairs Division and Discipline Chairs are provided in the course syllabus to direct the student's focus of study for each rotation to assure students can identify the appropriate core objectives to be learned while on their clinical rotations.

Simulation-based learning and assessment is 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*

<b>Integrative I</b>		
<b>Block 4: Clinical Practicum</b>		
Class number	Class name	Credit hours
ANE 5817	Clinical Practicum II	7
ANE 5201	Context Appropriate Simulation Training I	1
ANE 5932	Comprehensive Competency Examination VI & VII	2
BMS 5920	Research Methods & Biostatistics	3
<b>Total Credit Hours Block 4</b>		<b>13</b>
<b>Block 5: Anesthesia Specialty Care I</b>		
ANE 5836	Clinical Practicum III	6
ANE 5241	Context Appropriate Simulation Training II	1
ANE 5221	Professional, Ethical & Legal Concepts in Anesthesia	1
ANE 5941	Comprehensive Competency Examination VIII	1
ANE 5822	Capstone Project I	2
<b>Total Credit Hours Block 5</b>		<b>11</b>
<b>Integrative II</b>		
<b>Block 6: Anesthesia Specialty Care II</b>		
ANE 5856	Clinical Practicum IV	6
ANE 5951	Comprehensive Competency Examination IX	1
ANE 5231	Themes in Healthcare & Anesthesiology I	1
ANE 5842	Capstone Project II	2
<b>Total Credit Hours Block 6</b>		<b>10</b>
<b>Block 7: Transition to Practice</b>		
ANE 5866	Clinical Practicum V	6
ANE 5962	Certification Exam Preparation: Comprehensive Competency Examination X	2
ANE 5301	Themes in Healthcare & Anesthesiology II: Transition to Practice	1
<b>Total Credit Hours Block 7</b>		<b>9</b>
<b>Total Credit Hours Integrative</b>		<b>43</b>
<b>Total Credit Hours Program</b>		<b>109</b>

## *Course Descriptions – Master of Health Science in Anesthesia*

### Years 2 – Block 4 – Clinical Practicum

#### 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 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 5201) Context Appropriate Simulation Training: 1 credit hour**  
This course is a continuation in the student's exploration into cognition and decision-making under stressful situations, with recognition that performance of both novice and experienced anesthesia clinicians is limited in certain ways. The simulation-based course is designed expose students to difficult immersive situations to continually reinforce abnormal situation recognition, error mitigation and team dynamics. The course is a structured and systematic training in handling critical events, to provide reference source for such information, and to aid in handling emergency procedures to prepare students in advance and to support them as they manage crisis situations. Anesthesiologist assistants need to know how to manage a variety of resources effectively, bringing them together in concert as necessary to deal with the situation. The Context Appropriate Simulation Training (C.A.S.T.) System is based on the same principles while incorporating innovative simulation-based education and unique scenarios.
- **(ANE 5932) Comprehensive Competency Examination VI & VII: 2 credit hours**  
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).
- **(BMS 5920) Research Methods & Biostatistics: 3 credit hours**  
The course will provide an overview of the important concepts of research design, data collection, statistical and interpretative 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.

## Year 2 – Block 5 – Clinical Practicum

### Courses:

- **(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 5241) Context Appropriate Simulation Training II: 1 credit hour**

This course is a continuation in the student's exploration into cognition and decision-making under stressful situations, with recognition that performance of both novice and experienced anesthesia clinicians is limited in certain ways. The simulation-based course is designed expose students to difficult immersive situations to continually reinforce abnormal situation recognition, error mitigation and team dynamics. The course is a structured and systematic training in handling critical events, to provide reference source for such information, and to aid in handling emergency procedures to prepare students in advance and to support them as they manage crisis situations. Anesthesiologist assistants need to know how to manage a variety of resources effectively, bringing them together in concert as necessary to deal with the situation. The Context Appropriate Simulation Training (C.A.S.T.) System is based on the same principles while incorporating innovative simulation-based education and unique scenarios.
- **(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. Particular attention is paid to health disparities and the difficulties related to the development of normative ethical arguments in a multicultural context and the role a physician plays as a patient advocate. The course concludes by bringing attention to the ethical dilemmas faced when encountering the hidden values in the clinical setting.
- **(ANE 5941) Comprehensive Competency Examination VIII: 1 credit hours**

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 5822) Capstone Project I: 2 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.

## Year 2 – Block 6 – Clinical Practicum

### Courses:

- **(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 focused on the development and presentation of 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 promoting the development of critical thinking abilities through critical analysis of current literature and exploration of key anesthesia care issues. Emphasis is placed on the enhancement of the students' abilities 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 M.H.Sc. degree. Conducting actual scientific research is not mandatory, but highly recommended. An in-depth review of the primary literature regarding a faculty-approved anesthetic topic is required. The project should be a systematic investigation of a topic in the anesthesia field and should demonstrate an ability to critically analyze and integrate pertinent literature. The final paper must be considered suitable for publication in a refereed professional journal.
- **(ANE 5231) Themes in Healthcare & Anesthesiology I: 1 credit hour**  
Themes in Healthcare is the final installment of the Themes series of 'threaded' coursework 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 topics germane to planning and executing their Capstone project, the function, structure and economics of healthcare systems, and future practice models and technology within the anesthesiology field.

The second part of the course focuses on the student's transition to practice, providing the students with a foundation in professional development topics related to employment and practice, such as maintaining certification, lifelong learning,



developing, and fostering effective team-based practice, and successful long-term functioning within the larger healthcare system. Students will learn principles of professional interviewing, contract negotiations, health literacy, medical malpractice and reimbursement, servant leadership in practice, and cultural diversity impacting the provision of health care.

- **(ANE 5951) Comprehensive Competency Examination IX: 1 credit hours**  
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).

## Year 3 – Block 7 – Transition to Practice

- **(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 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 5301) Themes in Healthcare & Anesthesiology II: 1 credit hour**  
Themes in Healthcare is the final installment of the Themes series of ‘threaded’ coursework 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. The second part of the course focuses on the student’s transition to practice, providing the students with a foundation in professional development topics related to employment and practice, such as maintaining certification, lifelong learning, developing and fostering effective team-based practice, and successful long-term functioning within the larger healthcare system. Students will learn principles of professional interviewing, contract negotiations, health literacy, medical malpractice and reimbursement, servant leadership in practice, and cultural diversity impacting the provision of health care.
- **(ANE 5962) Certification Exam Preparation: 2 credit hour**  
In its entirety, the course will provide a complete review of current anesthesia practice framed against the primary topic areas of the certification exam delivered 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.