

University of Colorado Denver | Anschutz Medical Campus
Master of Science Program in Anesthesiology
2020-2021 Course Book

Semester 1 (Fall)

ANMS 5000: Orientation to Anesthesia **1.0 cr.**

Overview of basics of anesthesia to familiarize the student to basic competencies prior to their first clinical day. Topics covered include: medical terminology, pharmacology, anesthesia machine, basic monitoring, anesthesia care plans, drug dosing and calculations. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5001 Introduction to Clinical Anesthesia **2.0 cr.**

Introduction to induction, maintenance, and emergence from anesthesia, history and types of anesthesia, universal precautions, infection control, OR layout, sterile fields and techniques, patient interaction, starting intravenous catheters and arterial cannulation, obtaining arterial blood samples, and applying ASA-standard monitors. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5003 Patient Monitoring I **2.0 cr.**

Emphasizes basic monitors related to the practice of anesthesia, including ECG, NIBP, arterial line, SpO₂ and respiratory gas analysis. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5004 Introduction to Anesthesia Delivery Systems **2.0 cr.**

Students will undertake classroom and coincident laboratory experiences concerning anesthesia delivery systems and methods for evaluating patient safety issues including equipment and monitoring systems failures. Requisite: Must be admitted to MSA. Department Consent Required.

ANMS 5005 Principles of Airway Management **2.0 cr.**

Structure, function, pathophysiology, disease and management of the human airway. Basic and advanced principles of airway management, elective and emergent will be covered, including equipment and techniques. Examination, recognition, techniques and management involved in pediatric /adult difficult airways. Includes lab. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5006 Simulation and Skills Laboratory I **1.0 cr.**

Exploration of pulse oximetry, capnography, blood pressure monitoring systems, anesthesia delivery systems, breathing circuits, fresh gas flow effect, theory of dilutional methods of cardiac output monitoring, and relations between mean circulatory filling pressures and central venous pressure using anesthesia simulator. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5300 Applied Neurophysiology **2.0 cr.**

Basic science instruction utilizing systems based approach on human physiology. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5008 Clinical Anesthesiology I **5.0 cr.**

Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6801 MSA-1 Seminar I **1.0 cr.**

An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6701 Anesthesia Non-Technical Skills & Wellness I **1.0 cr.**

Anesthesia Non-Technical Skills (ANTS) and Wellness will examine and develop an understanding of medical errors, situational awareness, decision making, leadership, management of stress and fatigue. In addition this course will cover pedagogical principles in medical education and professionalism, all of which are integral in developing well-rounded and adaptable clinicians. Requisite: Must be admitted to MSA Program. Department Consent Required

Semester 2 (Spring)

ANMS 5007 Fundamentals of Anatomy and Physiology for Anesthetists **4.0 cr.**

Gross structures of the human body covered while integrating topographic and radiographic anatomy to stress the application and importance of clinical anatomy. This course will also develop the knowledge of the human anatomy necessary for the practice of the Anesthesiology. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5011 Anesthesia Principles and Practice I **2.0 cr.**
Principles involved in the formulation of anesthetic plans based upon data obtained during the preoperative evaluation, including the formulation and practices of different anesthetic plans and techniques as related to specific surgical procedures and pathophysiology. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5013 Patient Monitoring II **2.0 cr.**
More advanced monitoring including, BIS, SvO₂, arterial and central pressure monitoring, basics of ultrasound, advanced ECG and ST analysis. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5016 Simulation and Skills Laboratory II **1.0 cr.**
Application of patient monitoring, clinical anesthesia practice and use of a high fidelity patient simulation environment will be covered. Students will utilize critical thinking skills to fully integrate didactic knowledge in patient care situations. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5018 Clinical Anesthesiology II **5.0 cr.**
Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5100 Cardiovascular Physiology **2.0 cr.**
Developmental skills and foundations of the clinical practice of anesthesia gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5200 Pharmacology I **2.0 cr.**
General pharmacologic concept, membrane receptor, transport, biotransformation, pharmacokinetics and pharmacodynamics will be covered. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5500 Renal, Fluid and Electrolyte Physiology **2.0 cr.**
Physiology and pathophysiology of disease associated with the renal system. This includes specific instruction on common disease states, pre renal, intra renal and post renal failure. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6811 MSA-1 Seminar II **1.0 cr.**
An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6711 Anesthesia Non-Technical Skills & Wellness II **1.0 cr.**
Anesthesia Non-Technical Skills (ANTS) and Wellness will examine and develop an understanding of medical errors, situational awareness, decision making, leadership, management of stress and fatigue. In addition this course will cover pedagogical principles in medical education and professionalism, all of which are integral in developing well-rounded and adaptable clinicians. Requisite: Must be admitted to MSA Program. Department Consent Required.

Semester 3 (Summer)

ANMS 5021 Anesthesia Principles and Practice II **2.0 cr.**
Practical principles, application, and interpretation of various monitoring modalities including ECG, invasive and non-invasive blood pressure, oximetry, cardiac output, respiratory gas analysis, respiration, and instrumentation as they pertain to anesthesia practice. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5026 Simulation and Skills Laboratory III **1.0 cr.**
Application of patient monitoring, clinical anesthesia practice and use of a high fidelity patient simulation environment will be covered. Students will utilize critical thinking skills to fully integrate didactic knowledge in patient care situations. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5028 Clinical Anesthesiology III **7.5 cr.**
Developmental skills and foundations of the clinical practice of anesthesia will be gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5210 Pharmacology II **2.0 cr.**
Covers drugs that include inhaled anesthetics, opioids, barbiturates, benzodiazepines, anticholinesterases and anticholinergics, neuromuscular blockers, adrenergic agonists and antagonists, non-steroidal anti-inflammatory drugs, antiarrhythmics, calcium channel blockers, diuretics, anticoagulants, antihistamines, and antimicrobials. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5400 Respiratory Physiology **2.0 cr.**
Physiology and pathophysiology of disease associated with the pulmonary system. Specific instruction on common disease states, restrictive and obstructive pulmonary disorders, mechanical ventilation, arterial blood gas analysis and how these concepts apply to patient under anesthesia care will be covered. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5501 Anesthesiology and Co-Existing Diseases **2.0 cr.**
This course focuses on the anesthetic considerations that must be accounted for in patients with co-existing diseases due to physiological changes. Disease states include substance abuse, obesity, obstructive sleep apnea, asthma, COPD, etc. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 5002 Perioperative Medicine **2.0 cr.**
A course on preoperative evaluation of the patient based on patient and surgery risk factors. Small group application of patient history and physical taking will also be utilized to allow students to apply concepts learned in class. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6007 Applied Clinical Anatomy and Physiology for Anesthetists **2.0 cr.**
Gross structures of the human body will be covered while integrating topographic and radiographic anatomy to stress the application and importance of clinical anatomy. This course will also develop the knowledge of the human anatomy necessary for the practice of anesthesiology. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6821 MSA-1 Seminar III **1.0 cr.**
An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program. Department Consent Required.

Semester 4 (Fall)

ANMS 6031 Anesthesia Principles and Practice III **2.0 cr.**
This is a course on improving system-based learning and practice. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6038 Clinical Anesthesiology IV **7.5 cr.**
Developmental skills and foundations of the clinical practice of anesthesia will be gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Participation and responsibilities increase through the year as knowledge and skills develop. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6110 Hepatic and Maternal-Fetal Physiology **2.0 cr.**
Pathophysiology in a systems approach: cardiovascular, emphasizing hemodynamics, Starling forces, pulmonary responses, renal hemodynamics, temperature regulation, blood gases/pH, and maternal and fetal physiology. Emphasizes systems which affect evaluation and planning for anesthesia and systems affected by anesthesia administration. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6220 Pharmacology III **2.0 cr.**
This is a continuation of anesthesia specific pharmacology. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6511 Anesthesia and Co-Existing Diseases II **2.0 cr.**
Continuation of Anesthesia and Co-Existing Diseases I. Focuses on anesthetic considerations that must be accounted for in patients with co-existing diseases due to physiological changes. Disease states include ischemic heart disease, valvular heart disease, systemic hypertension, pulmonary hypertension, coagulation disorders, etc. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6831 MSA-1 Seminar IV **1.0 cr.**
An introductory course into Senior Seminar, each student will observe, participate, and be tested over a presentation/PBLD conducted by a Senior Student. This course will not only discuss challenges presented in the clinical environment, but it will also prepare the student for Senior Seminar. Requisite: Must be admitted to MSA Program. Department Consent Required.

Semester 5 (Spring)

ANMS 6301 Senior Seminar I**2.0 cr.**

Each student will be required to research, prepare, and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6048 Clinical Anesthesiology V**10.0 cr.**

Clinical experience in required rotations through anesthesia subspecialty areas. Two-week and four-week interval rotations assigned, and will require call during some nights and weekends. Clinical practice is gained through one-on-one supervised instruction in operating room and other ancillary anesthetizing locations. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6201 Senior Project I**1.0 cr.**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Requisite: Must be admitted to MSA Program. Department Consent Required.

Semester 6 (Summer)

ANMS 6311 Senior Seminar II**2.0 cr.**

Each student will be required to research, prepare and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6058 Clinical Anesthesiology VI**10.0 cr.**

Clinical experience in required rotations through subspecialty anesthesia areas. Rotations assigned in two-week and four-week intervals, and will require call during some nights and weekends. Clinical practice gained through one-on-one supervised instruction in operating room and other ancillary anesthetizing locations. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6212 Senior Project II**1.0 cr.**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Requisite: Must be admitted to MSA Program. Department Consent Required.

Semester 7 (Fall)

ANMS 6321 Senior Seminar III**2.0 cr.**

Each student will be required to research, prepare and present on clinical challenges of different clinical scenarios. Each case will be analyzed and discussed by the group with faculty participation. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6068 Clinical Anesthesiology VII**10.0 cr.**

Clinical experience in required rotations through anesthesia subspecialty areas. Rotations assigned in two-week and four-week intervals, and require call during some nights and weekends. Clinical practice gained through one-on-one supervised instruction in the operating room and other ancillary anesthetizing locations. Requisite: Must be admitted to MSA Program. Department Consent Required.

ANMS 6221 Senior Project III**1.0 cr.**

Each student will develop a senior year project with the help of a faculty mentor. Project will be research, process, or quality improvement related. Requisite: Must be admitted to MSA Program. Department Consent Required.