EMERGENCY MEDICAL SERVICES

Program Director: Mike Miller

BSEMS, BS in Emergency Medical Services Major Requirements: 55 Credits

Completion of EMS 101 Fundamentals of Emergency Medical Services with a grade of “C” or better or equivalent course and National Registry or state EMT certification are required prior to beginning 300-level and above courses.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>EMS 101</td>
<td>Fundamentals of Emergency Medical Services</td>
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<td>EMS 301</td>
<td>Preparatory</td>
<td>5</td>
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<tr>
<td>EMS 403</td>
<td>Patient Assessment</td>
<td>3</td>
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<td>EMS 406</td>
<td>Airway, Ventilation and Respiratory Emergencies</td>
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<td>EMS 407</td>
<td>Trauma</td>
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<td>EMS 411</td>
<td>Special Patient Populations</td>
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<td>EMS 412</td>
<td>Cardiology</td>
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<td>EMS 413</td>
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<td>EMS 414</td>
<td>Medical Emergencies I</td>
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<td>EMS 415</td>
<td>Assessment Based Management</td>
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<td>EMS 416</td>
<td>Medical Emergencies II</td>
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<td>EMS 420</td>
<td>Clinical Practicum I</td>
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<td>EMS 421</td>
<td>Field Observation</td>
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<td>EMS 422</td>
<td>Clinical Practicum II</td>
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<td>EMS 423</td>
<td>Field Experience</td>
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<td>EMS 424</td>
<td>Clinical Practicum III</td>
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<td>EMS 425</td>
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<tr>
<td>EMS Electives</td>
<td>Select six hours 400-level or above:</td>
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<td>EMS 440</td>
<td>Educational Planning And Assessment For EMS Educators</td>
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<tr>
<td>EMS 470</td>
<td>Management Of Emergency Medical Systems</td>
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<td>EMS 479</td>
<td>Special Topics in EMS</td>
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<td>EMS 480</td>
<td>Critical Care Paramedic</td>
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<tr>
<td>EMS 493</td>
<td>Directed Independent Readings</td>
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<td>EMS 495</td>
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<tr>
<td>EMS 497</td>
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Total Credits 55

1 Students pursuing a Pre-Professional School curriculum may receive approval to apply courses from these areas toward the EMS electives. Students should consult with advisors from their school of interest to ensure appropriate completion of entrance requirements. Individualized advice on courses is available from the EMS Education department.

Supporting Courses

Additionally, the following Supporting Courses are required:

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<tr>
<td>NAT</td>
<td>Natural Sciences</td>
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<tr>
<td>BIO 149</td>
<td>Biology for the Non-Science Major</td>
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2 Students who have successfully completed EMS 301-EMS 425 are eligible to test for National Registry certification as a paramedic.

Courses

Based upon the current national Emergency Medical Technician (EMT) Educational Standards and Guidelines, the primary focus of an EMT is to provide basic emergency medical care and transportation for patients who access the emergency medical system. EMTs typically function as members of ambulance response agencies. Curriculum content will include foundational information regarding emergency medical response systems; airway, respiration, and ventilation; cardiology and resuscitation; trauma; and medical emergencies to include pediatrics and obstetrics. Clinical skills include basic history and physical examination techniques; basic airway and breathing devices, including the administration of oxygen; administration of select medications; mechanical CPR devices and AEDs; and splinting and bleeding control. Students are required to participate in clinical and field observation with various hospitals and EMS agencies. Successful completion of all course requirements satisfies eligibility requirements to complete the National Registry of EMTs, EMT level certification examination. P. CPR for Health Care Providers; Immunizations; Background Investigation.

EMS 160. Out Of Hospital Emergency Care Course For Nurses. 4 credits.
Based upon the current national Emergency Medical Technician (EMT) Education Standards and Guidelines, the primary focus of an EMT is to provide basic emergency medical care and transportation for patients who access the emergency medical system. This course has been designed as an advanced placement course, recognizing the foundational medical knowledge and skills that nurses, physicians, and other healthcare professionals possess. Topics include emergency medical response systems; a review of airway, respiration, and ventilation; cardiology and resuscitation; trauma; and medical emergencies to include pediatrics and obstetrics. Clinical skills will be reviewed with an emphasis on application and use of equipment and techniques in an out-of-hospital practice environment. Students are required to participate in field experience with various EMS agencies. Successful completion of all course requirements satisfies eligibility requirements to complete the National Registry of EMTs, EMT level certification examination. P. Current unencumbered RN, LPN, MD, or DO license to practice within the US, CPR for Health Care Providers; Immunizations.
EMS 213. Human Anatomy for Pre-Pharmacy Students. 3 credits.
Pre-pharmacy students will learn cellular, tissue, organ and system level anatomical structures, with emphasis on using anatomical knowledge as a foundation for pharmaceutical care. P: BIO 201/BIO 205 or BIO 202/BIO 206 (both preferred).

EMS 215. Medical Terminology. 1 credit. (Same as OTD 215)
Medical Terminology is a critical part of language and communication used by health care practitioners. This self directed course is designed for students planning a career in the health services and related fields. Course content includes a study of basic medical terminology. Students will construct and decipher terms using prefixes, suffixes, word roots, combining forms, special endings, plural forms, and abbreviations related to body systems, cavities, planes, and positions. Competency is evaluated throughout the semester through online testing.

EMS 300. Advanced EMT. 0-7 credits.
Based upon current national Advanced EMT (AEMT) Educational Standards and Guidelines, the AEMT course is comprised of lectures, practical skills sessions and case studies. Topics include anatomy and physiology, pharmacology including the administration of select AEMT medications, blind insertion airway devices to maintain ventilation, and intravenous access and intraosseous access and infusions. P: DC.

EMS 301. Preparatory. 5 credits.
Based upon the current national Paramedic Education Standards and Guidelines, the paramedic education program has been designed to include a series of modular courses, occurring in a specific sequence. The preparatory unit serves as the foundational course integrating comprehensive knowledge of EMS systems; the safety and well-being of the paramedic; infectious diseases, immunizations, and personal protective equipment; medical legal aspects of EMS; and ethical considerations. Additional curricular content includes an overview of anatomy and physiology, pathophysiology, medical terminology, principles of pharmacology, intravenous access, and medication administration. P: DC.

EMS 320. AEMT Clinical Practicum. 0-1 credits.
Clinical practicum will occur within hospitals and clinics under the direct supervision of physicians, nurses and paramedics. Students will participate in performing patient assessments and formulate plans of care, performing skills within the scope of practice of Advanced EMTs. P: DC.

EMS 321. AEMT Field Internship. 0-2 credits.
Field internship includes practical application of knowledge and skills learned as an Advanced EMT, under the direct supervision of paramedics, on an ambulance. Students will participate in performing patient assessments and formulate plans of care, performing skills within the scope of practice of Advanced EMTs. P: DC.

EMS 403. Patient Assessment. 3 credits.
Based upon the current national Paramedic Education Standards and Guidelines, the patient assessment course integrates scene and patient assessment findings with the knowledge of epidemiology and pathophysiology to form a field impression. This includes developing a list of differential diagnoses through clinical reasoning to modify the assessment and formulate a treatment plan. Topics include therapeutic communication, life span development, scene size-up, history-taking, primary and secondary assessments, reassessment, and introduction to laboratory blood chemistry results. P: DC.

EMS 406. Airway, Ventilation and Respiratory Emergencies. 3 credits.
Based upon the current national Paramedic Education Standards and Guidelines, airway management, respiration and artificial ventilation are essential to positive patient outcome. This course integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages. Epidemiology, signs and symptoms, assessment, psychosocial impact, prognosis and management of respiratory conditions is also included. Skills include supplemental oxygen administration, positive pressure ventilation devices, a variety of basic and advanced airways, including endotracheal intubation. P: DC.

EMS 407. Trauma. 4 credits.
Based upon the current national Paramedic Education Standards and Guidelines, trauma integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan. Epidemiology, signs and symptoms, assessment, psychosocial impact, prognosis and management of trauma conditions will be discussed. Topics include trauma systems; injury prevention programs; hemorrhage and shock; thoracic and abdominal trauma; musculoskeletal and soft tissue injuries; traumatic brain injury; facial, neck and spinal trauma, and multisystem trauma victims. Special considerations of pregnant, pediatric, geriatric, and cognitively impaired trauma patients is included. P: DC.

EMS 411. Special Patient Populations. 3 credits.
Based upon the current national Paramedic Education Standards and Guidelines, special patient populations include the epidemiology, signs and symptoms, assessment, psychosocial impact, prognosis and management of gynecologic, obstetric, neonate, pediatric, geriatric and patients with special challenges. This course integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan. Topics include complications of pregnancy, normal delivery, abnormal deliveries, newborn care including neonatal resuscitation, sudden infant death syndrome (SIDS), several pediatric conditions, abuse and neglect, Alzheimer’s, polypharmacy, hospice care and other geriatric considerations. P: DC.

EMS 412. Cardiology. 5 credits.
Based upon the current national Paramedic Education Standards and Guidelines, cardiology integrates complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan is included. Epidemiology, signs and symptoms, assessment, psychosocial impact, prognosis and management of cardiac conditions will be discussed. This course includes cardiac electrophysiology and ECG monitoring, including ECG interpretation. Defibrillation, synchronized cardioversion, and transcatheter pacing are essential skills that will be included. Advanced Cardiac Life Support provider level course is also included. P: DC.

EMS 413. Operations. 2 credits.
Based upon the current national Paramedic Education Standards and Guidelines, EMS Operations reviews knowledge of operational roles and responsibilities to ensure safe patient, public, and personal safety. Topics include principles of safely operating a ground ambulance, incident management, response to multiple casualty incidents, principles of triage, criteria for utilizing aeromedical response and transport, bioterrorism response, simple vehicle extrication, and hazardous materials awareness. P: DC.
EMS 414. Medical Emergencies I. 5 credits.
Based upon the current national Paramedic Education Standards and Guidelines, medical emergencies I includes neurology, abdominal and gastrointestinal disorders, immunology, endocrinology, and renal disorders. An integration of the complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan is included. Epidemiology, signs and symptoms, assessment, psychosocial impact, prognosis and management of several medical conditions will be discussed, with an emphasis on stroke, seizures, dementia, gastrointestinal hemorrhage, inflammatory bowel disorders, gall bladder disorders, allergic and anaphylactic reactions, diabetes and diabetic emergencies, adrenal and pituitary glands disorders, renal failure, renal calculi, and dialysis. P: DC.

EMS 415. Assessment Based Management. 1 credit.
This course encompasses several review sessions designed to prepare paramedic program students for final comprehensive and national certification examinations. Cognitive and psychomotor skills exams serve as summative capstone exams, requiring students to synthesize the information and skills learned throughout the program. P: DC.

EMS 416. Medical Emergencies II. 4 credits.
Based upon the current national Paramedic Education Standards and Guidelines, medical emergencies II includes toxicology, hematology, environmental emergencies, and psychiatric disorders. An integration of the complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan is included. Epidemiology, signs and symptoms, assessment, psychosocial impact, prognosis and management of several medical conditions will be discussed, with an emphasis on various toxidromes, alcohol intoxication and withdrawal, heat exhaustion and heat stroke, frostbite and hypothermia, diving and altitude related emergencies, drowning, envenomations, suicidal ideation and suicide, psychosis, and sickle cell disease. Blood types, blood transfusions, and hemolytic reactions will also be included. P: DC.

EMS 420. Clinical Practicum I. 1 credit.
Clinical practicum includes an application of the knowledge and skills students learn in the classroom at various hospital and clinic affiliate sites. Students participate in patient care activities under the direct supervision of physicians, nurses, paramedics, therapists, and other healthcare professionals. Students will perform patient assessments, obtain medical histories, and assist in formulating plans of care, performing skills within the scope of practice of paramedics. Patient care areas include the emergency department, respiratory care, anesthesia services/OR, critical care units, pediatrics, labor and delivery, newborn nursery, and cardiac catheterization lab. P: DC.

EMS 421. Field Observation. 1 credit.
Field observation provides paramedic students with the opportunity to participate in the delivery of emergency medical services at various field site affiliates. Students participate under the direct supervision of paramedics, performing all paramedic level skills. The primary purpose of field internship is a capstone experience managing the paramedic level decision-making associated with out-of-hospital patient encounters. P: DC.

EMS 422. Clinical Practicum II. 2 credits.
Clinical practicum includes an application of the knowledge and skills students learn in the classroom at various hospital and clinic affiliate sites. Students participate in patient care activities under the direct supervision of physicians, nurses, paramedics, therapists, and other healthcare professionals. Students will perform patient assessments, obtain medical histories, and assist in formulating plans of care, performing skills within the scope of practice of paramedics. Patient care areas include the emergency department, respiratory care, anesthesia services/OR, critical care units, pediatrics, labor and delivery, newborn nursery, and cardiac catheterization lab. P: DC.

EMS 423. Field Experience. 2 credits.
Field experience provides paramedic students with the opportunity to participate in the delivery of emergency medical services at various field site affiliates. Students participate under the direct supervision of paramedics, taking a progressively more active role in functioning as an ALS member of the team. Paramedic level skills are performed and students are expected to demonstrate progress toward the ability to function as a team leader. P: DC.

EMS 424. Clinical Practicum III. 2 credits.
Clinical practicum includes an application of the knowledge and skills students learn in the classroom at various hospital and clinic affiliate sites. Students participate in patient care activities under the direct supervision of physicians, nurses, paramedics, therapists, and other healthcare professionals. Students will perform patient assessments, obtain medical histories, and assist in formulating plans of care, performing skills within the scope of practice of paramedics. Patient care areas include the emergency department, respiratory care, anesthesia services/OR, critical care units, pediatrics, labor and delivery, newborn nursery, and cardiac catheterization lab. P: DC.

EMS 425. Field Internship-Capstone. 2 credits.
Field internship provides paramedic students with the opportunity to participate in the delivery of emergency medical services at various field site affiliates. Students participate under the direct supervision of paramedics, performing all paramedic level skills. The primary purpose of field internship is a capstone experience managing the paramedic level decision-making associated with out-of-hospital patient encounters. P: DC.

EMS 440. Educational Planning And Assessment For EMS Educators. 3 credits.
Theories and principles of learning and teaching including development of effective EMS course objectives, lecture outlines, and examinations. Course includes introduction to use of DOT curricula and materials. P: EMS 101; Must be BLS Instructor. Must show EMT-B Certification or higher.

This is an introductory transition course for paramedics that have been previously trained at other programs. Instruction in this course is individually designed based on the accreditation status of the instruction students have received at other programs, including the curriculum, clinical experience and history of licensure and certification. During this course, the faculty will conduct a comprehensive assessment of the student focusing on assuring that all students have the fundamental knowledge, affective and psychomotor skills necessary to progress to full entry-level competency and practice as a Nationally Registered and State-licensed Paramedic. May be repeated to a limit of 6 hours. P: DC.
This is an intermediate level course that is intended to build on the fundamental knowledge and skills achieved in the EMS 450 Academic Transition I Course. Instruction in this course is intended to have the students achieve practice proficiency in all paramedic treatment modalities. May be repeated to a limit of 6 hours. P: EMS 450.

EMS 452. Paramedic Certificate-to-Academic Transition III. 3-6 credits.
This is an advanced level course that is designed for the paramedic that has achieved entry-level proficiency in all areas of paramedic practice. In this course, the concepts of evidence-based paramedic practice and evaluation of the practices, literature, concepts and theories related to field and clinical practices will be explored. Students that complete this course will be prepared to serve in EMS leadership positions with community services and regulatory agencies. May be repeated to a limit of 6 hours. P: EMS 451.

EMS 455. Paramedic Clinical Transition I. 0-6 credits.
This is an Introductory Clinical Course for Paramedics that have been trained at other programs. Fundamental clinical practice skills are assessed in laboratory settings and practical laboratory scenarios. Students that demonstrate fundamental knowledge, affective and psychomotor competencies will be scheduled for hospital and field experiences. May be repeated to a limit of 6 hours. P: DC.

EMS 456. Paramedic Clinic Transition II. 0-6 credits.
This is an Intermediate Clinical Course for Paramedics that have demonstrated competency in all psychomotor skills in laboratory, hospital and field settings. Students will be assigned to hospital and field clinical units with the goal of achieving psychomotor proficiency in all areas of field and hospital clinical skills. May be repeated to a limit of 6 hours. P: EMS 455.

EMS 457. Paramedic Clinical Transition III. 3-6 credits.
This is an Advanced Clinical Course for Paramedics that have demonstrated proficiency in all psychomotor skills in hospital and field settings. Students will be assigned to field and hospital rotations with the intent of demonstrating clinical proficiency and team leadership capabilities in all areas of hospital and field clinical practices. May be repeated to a limit of 6 hours. P: EMS 456.

EMS 458. Critical Care Paramedic. 6 credits.
This course is designed to prepare paramedics to provide advanced critical care during inter-facility transports, including performing advanced clinical patient assessments and providing invasive care beyond the standard scope of advanced prehospital care. Includes modes of transport, flight physiology, barophysiology and transfer considerations, including safety, patient packaging and practice in a closely confined space), airway and ventilation management including surgical airways and ventilators, CPAP and BiPAP, thoracostomy, and chest drainage maintenance, central venous lines, expanded pharmacologic formulary, interpretation of laboratory data, 12-lead ECG interpretation, monitoring and maintaining an IABP, and hemodynamic monitoring. Instruction is provided in both didactic and clinical settings. P: EMS 475 or DC; currently licensed paramedic with two years of active clinical experience or registered nurse with a minimum of one year critical care experience; current Healthcare Provider CPR and ACLS; Trauma course (PHTSL, BTL, TNCC, OR TNATC); Pediatric course (PALS, PEPP, PPC, OR ENPC); AMLS recommended.

May be repeated to a limit of six hours. P: DC.

EMS 495. Directed Independent Study. 1-3 credits.
May be repeated to a limit of six hours. P: DC.

EMS 497. Directed Independent Research. 1-3 credits.
May be repeated to a limit of six hours. P: DC.

EMS 470. Management Of Emergency Medical Systems. 3 credits.
Emphasis on knowledge, skills and abilities required of first-line managers of EMS systems including personnel, operations and equipment. P: EMS 101.

EMS 479. Special Topics in EMS. 1-3 credits.
Exploration and analysis of problems and topics in today’s EMS environment. May be repeated to a limit of 12 hours. P: IC.