

# SCHOOL OF SAFETY, SECURITY & EMERGENCY MANAGEMENT

Dr. William Hicks, Chair

Dr. Tom Schneid, Chair

## Faculty

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## College of Justice, Safety & Military Science Residency Requirement

*The College of Justice, Safety and Military Science requires that students graduating with a baccalaureate degree from the School of Justice Studies, or the School of Safety, Security, and Emergency Management, must earn a minimum of 18 upper-division credit hours in the home subject of their major (excluding co-op and applied learning), as specified by Degree Works.*

## Bachelor's

- Emergency Medical Care, Bachelor of Science with a Concentration in Emergency Services Administration (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/emergency-medical-care-concentration-services-administration-bs/>)
- Emergency Medical Care, Bachelor of Science with a Concentration in Paramedic/Science (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/emergency-medical-care-concentration-paramedic-science-bs/>)
- Emergency Medical Care, Bachelor of Science with a Concentration in Paramedical Clinic/FSE (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/emergency-medical-care-concentration-paramedical-clinic-fse-bs/>)
- Fire Protection Administration, Bachelor of Science (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/fire-protection-administration-bs/>)
- Fire Protection and Safety Engineering Technology, Bachelor of Science (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/fire-protection-safety-engineering-technology-bs/>)
- Fire, Arson, and Explosion Investigation, Bachelor of Science (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/fire-arson-explosion-investigation-bs/>)
- Homeland Security, Bachelor of Science (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/homeland-security-bachelor-science-bs/>)

- Occupational Safety, Bachelor of Science (B.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/occupational-safety-bs/>)

## Associate's

- NREMT-P to Associate of Paramedicine (ASP) Degree Program (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/nremt-p-asp/>)
- Paramedicine, Associate of Science (A.S.) (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/paramedicine-as/>)

## Minor

- Disaster Management, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/disaster-management-minor/>)
- Emergency Medical Care, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/emergency-medical-care-minor/>)
- Fire and Safety Engineering Technology, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/fire-safety-engineering-technology-minor/>)
- Fire Protection Administration, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/fire-protection-administration-minor/>)
- Fire, Arson, and Explosion Investigation, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/fire-arson-explosion-investigation-minor/>)
- Homeland Security, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/homeland-security-minor/>)
- Industrial Fire Protection, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/industrial-fire-protection-minor/>)
- Occupational Safety, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/occupational-safety-minor/>)
- Social Intelligence and Leadership, Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/social-intelligence-leadership-minor/>)
- Traffic Safety (Non-Teaching), Minor (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/traffic-safety-non-teaching-minor/>)

## Certificate

- Basic Emergency Medical Technician, Departmental Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/basic-emergency-medical-technician-certificate/>)
- Homeland Security, University Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/homeland-security-certificate/>)
- Industrial Fire Protection, University Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/>)

safety-security-emergency-management/industrial-fire-protection-certificate/)

- Intelligence Studies, University Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/intelligence-studies-certificate/>)
- Security Management, University Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/security-management-certificate/>)
- Social Intelligence & Leadership, University Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/social-intelligence-leadership-certificate/>)
- Wildland Firefighting, University Certificate (<http://catalogs.eku.edu/undergraduate/justice-safety-military-science/safety-security-emergency-management/wildland-firefighting-certificate/>)

## Courses

### Emergency Medical Care

#### **EMC 102. First Response Emergency Care. (4 Credits)**

I, II, A. Prerequisite or co-requisite: EMC 104. Emergency medical care techniques adhere to U.S. Department of Transportation curriculum for Emergency Medical Responder. Credit will not be awarded to students who have credit for HEA 202 or HEA 203. 2 Lec/2 Lab.

#### **EMC 104. Healthcare Basic Life Support. (1 Credit)**

A. Basic cardiac life support skills for healthcare student or professional in accord with peer-reviewed American Heart Association (AHA) scientific guidelines. Course completion documentation when AHA requirements met. Maximum 6 enrollments for renewal. 0.25 Lec/0.75 Lab.

#### **EMC 105. Survey of Medical Terminology. (1 Credit)**

A Cross-listed with CHS 105. Independent study, modular design paced by class meetings includes work roots, prefixes, suffixes, and general medical terms. Credit will not be awarded to students who have previously taken CHS 105 and MAS 200.

#### **EMC 110. Emergency Medical Technician. (5 Credits)**

I, II, A. Prerequisite or Corequisite: EMC 104. Prehospital basic life support concepts, skills, and field clinical experience for entry level Emergency Medical Technician adhering to national curricula. Meets eligibility requirements for state certification and national registration examinations. 3 Lec/2 Lab.

#### **EMC 110L. Introduction to Emergency Medical Care Laboratory. (2 Credits)**

A. Prerequisite or Corequisite: EMC 104 and EMC 110. Prehospital basic life support skills and field clinical experience for entry level Emergency Medical Technician-Basic adhering to national curricula. Meets eligibility requirements for state certification and national registration psychomotor examinations. 4 Lab.

#### **EMC 115. Basic Clinical/Field Experience. (2 Credits)**

I, II, A. Prerequisite: departmental approval and Certified EMT-Basic. Minimum of 64 hours supervised hospital emergency department and prehospital emergency care ambulance clinical experience. Preceptor evaluates basic life support knowledge and skills.

#### **EMC 130. Human Systems of Assessment. (3 Credits)**

A. Overview of human body and its systems as applied to rapid patient assessment and problem identification. Limited to certified paramedic students only.

#### **EMC 200. Introduction to Prehospital Advanced Life Support. (2 Credits)**

II, A. Role and responsibilities of EMT-Paramedic, components of EMS systems, medical/legal considerations, and communications in advanced and basic life support settings.

#### **EMC 205. Prehospital Management of OB/GYN Emergencies. (1 Credit)**

I, A. Pathophysiology and advanced level prehospital management of antepartum, parturition, postpartum, and gynecological emergencies. Assessment, care, and transportation of the neonate.

#### **EMC 212. Crash Victim Auto Extrication. (1 Credit)**

I, A. Survey of vehicle extrication procedures for emergency medical personnel. Adheres to U.S. Department of Transportation content and objectives. 1 Lec/1 Lab.

#### **EMC 215. Prehospital Management of Behavioral Emergencies. (1 Credit)**

I, A. Survey of vehicle extrication procedures for emergency medical personnel. Adheres to U.S. Department of Transportation content and objectives. 1 Lec/1 Lab.

#### **EMC 225. Introduction to Pharmacology. (3 Credits)**

I, II, A. Introduction to classification, nature, and uses of medications. Pharmacological agents utilized in prehospital health care setting emphasized.

#### **EMC 240. Introduction to Electrocardiography. (3 Credits)**

I, II, A. Cardiac anatomy, physiology, and electrophysiology related to ECG. Proficient ECG interpretation skills emphasized. EMC 270 EMTP. Theory/Practicum I.

#### **EMC 300. Emergency Operations, and Behavioral Crisis. (3 Credits)**

Introduction to the emergency medical field. Topics include legal and ethical issues; infection control; disaster preparedness; and recognition and care of patients with behavioral emergencies. Credit will not be awarded to students who have credit for EMC 200 or EMC 215.

#### **EMC 303. Introduction to Cardiology. (3 Credits)**

Introduction to prehospital electrocardiography and use and classification of pharmacological agents. Credit not awarded to students who have received credit for EMC 225 and EMC 240.

#### **EMC 305. Prehospital Management of OB/GYN/Pediatric Emergency. (3 Credits)**

Pathophysiology and advanced level assessment and management of OB, GYN, and pediatric patients. Credit will not be awarded to students who have received credit for EMC 205.

#### **EMC 310. Advanced Cardiology. (3 Credits)**

(2) II, A. Prerequisites and/or co-requisites: EMC 303 and EMC 335; or departmental approval. Advanced diagnostics, interventions, and management of cardiovascular emergencies to include cardiac resuscitation adhering to the standards of the American Heart Association. AHA ACLS Provider required for course completion. 2 Lec/2 Lab.

#### **EMC 315. Pediatric Adv Life Support. (1 Credit)**

A. Assessment, recognition, and intervention for infant or child with cardiopulmonary arrest or shock. Adheres to American Heart Association and Academy of Pediatrics cognitive and performance standards. AHA PALS Provider evidence of course completion available.

#### **EMC 320. Adv Life Support: Trauma. (3 Credits)**

II, A. Prerequisites: EMC 115, 240, BIO 171, 301. Prehospital management of complex patients with multiple systems failure secondary to trauma related pathologies.

**EMC 335. Medical Emergencies I. (3 Credits)**

I, A. Prerequisites: EMC 240, BIO 171, 301, EMC 115, 225, and department approval. Pathophysiology and advanced level prehospital management of emergencies of the respiratory, cardiovascular, endocrine, nervous, gastrointestinal, genitourinary, and reproductive systems.

**EMC 336. Case Management. (1 Credit)**

I, II, A. Prerequisite or Co-requisite: EMC335 and 342 or departmental approval. Hands-on advanced case management of medical and trauma emergencies using low and high-fidelity patient care simulation.

**EMC 340. Advanced Life Support: Medical Emergencies. (3 Credits)**

II, A. Prerequisite: EMC 335. Pathophysiology and advanced level prehospital management of emergencies involving anaphylaxis, toxicology, alcoholism, drug abuse, infectious diseases, environmental hazards, and pediatric and geriatric patients.

**EMC 341. Case Management. (1 Credit)**

I, II, A. Co-requisite: EMC 340 and 352 or departmental approval. Advanced case management of medical and trauma emergencies requiring critical thinking, oral critical thinking, practical and didactic assessment.

**EMC 342. Advanced Clinical I. (3 Credits)**

I, A. Corequisite: EMC 335. Integration of basic and advanced life support concepts and psychomotor skills in patient care situations developed through supervised assignments in various clinical settings and through simulation.

**EMC 342L. Advanced Clinical I Lab. (0 Credits)**

Integration of basic and advanced life support concepts for psychomotor skills in patient care situations developed through supervised assignments in various clinical settings and simulation.

**EMC 349. Co-op or Appl Lrn: Em Med Care. (0.5-8 Credits)**

I, II, A. Work in placements related to academic studies. A minimum of 80 hours of employment is required for each semester credit hour.

**EMC 349A. Cooperative Study: Emergency Medical Care. (0.5-8 Credits)****EMC 349B. Cooperative Study: Emergency Medical Care. (0.5-8 Credits)**

Work in placements related to academic studies.

**EMC 352. Advanced Clinical II. (3 Credits)**

II, A. Prerequisite: EMC 342. Corequisites: EMC 320, 340 and 352L. Hospital assignments allow continued development and application of cognitive and psychomotor skills in critical situations. Autonomous decision-making skills developed under supervision through increased participation in patient care.

**EMC 352L. Advanced Clinical II Lab. (0 Credits)**

(0) Pre-requisite: EMC 342. Co-requisite: EMC 340 and EMC 352. Clinical assignments allow continued development and application of cognitive and psychomotor skills in critical situations. Autonomous decision-making and critical thinking skills in clinical situations developed under supervision through increased participation in patient care.

**EMC 360. Advanced Field Internship. (2 Credits)**

A. Prerequisites: EMC 205, 212, 215, 310, 320, and 352. Minimum 120 hours supervised experience on paramedic ambulance. Progresses from advanced emergency care delivery observation to beginning team member responsibilities.

**EMC 362. Advanced Field Internship II. (4 Credits)**

A. Prerequisite or Corequisite: EMC 200, 205, 215, and 360. Continuation of supervised experience on advanced life support ambulance. Assumes team member role with progression to team leader. Minimum advanced internship experience requires 75 ALS Contacts.

**EMC 380. Advanced Prehospital Theory Medical. (4 Credits)**

A. Prerequisites: Kentucky Certified EMT-Paramedic and admission to EMC major. Foundation course for paramedic students which focuses on pathophysiological basis for prehospital interventions and management. Includes in-depth history and assessment skills.

**EMC 382. Adv Prehospital Theory-Trauma. (4 Credits)**

A. Prerequisites: Kentucky Certified EMT-Paramedic and admission to EMC major. Foundation course for paramedic students which focuses on pathophysiological basis for prehospital interventions and management in trauma settings. Includes in-depth history and assessment skills.

**EMC 389. Topical Seminar. (1-3 Credits)**

I, II, A. Prerequisite or Co-requisite: EMC 320, 335 and 342 or departmental approval. Development and presentation of research in contemporary methods, techniques, practices, and devices in the field. May be retaken under different topics to a maximum of 12 hours.

**EMC 400. Emergency Care Systems Management. (3 Credits)**

I, II, A. Prerequisites: ENG 300 or FSE 200. EMS systems design and typical agency divisions, including operations, communications, training and customer service. Projects focus on system design, training and efficiency.

**EMC 420. Emergency Services Design and Budget. (3 Credits)**

A. Prerequisite or Co-requisite: ENG 300 (or FSE 200) or departmental approval. Identify and compare issues with staffing, operations, communications, training and mission with various EMS systems models. Develop and revise sample budgets for EMS systems.

**EMC 430. Legal and Ethical Aspects of Emergency Services. (3 Credits)**

A. Prerequisite: departmental approval. Examine and apply moral and ethical decisions made in emergency services. Issues of diversity, expanded health care settings, aging population, and others will be explored.

**EMC 440. EMS Instruction. (3 Credits)**

A. Prerequisite: departmental approval. Introduction to the principles involved in EMS adult learning. Roles issues, domains of learning, and instruction models will be emphasized. Organization and planning for the EMS community including diverse learning populations and regulations.

**EMC 450. Disaster Medical Operations. (3 Credits)**

A. Emergency medical communications, cooperation and support in response to a natural or human-made disaster. Planning, delivery and recovery of medical systems by various local, state and federal agencies and the private sector.

**EMC 480. Topics in Emergency Medicine. (3 Credits)**

I, II, A. Investigation into the pathophysiology of traumatic and medical emergencies which applies to the latest trends in recognition and management.

**EMC 489. Introduction to Research Methods. (3 Credits)**

A. Prerequisites: ENG 300 or FSE 300, and FSE 200. Introduction to basic research methods for professionals in emergency services and public agency practitioners and educators. This includes foundational principles of statistical analyses and application, as well as human subjects protections.

**Fire and Safety Engineering****FSE 101. Fire Prevention. (3 Credits)**

A. An introduction to fire and safety related codes; fire prevention methods; mechanical systems; and engineering solutions for hazards. An in-depth look at the Life Safety Code, the function and testing of fire related building components.

**FSE 120. Fire Behavior and Combustion. (3 Credits)**

A. Introduction to the chemistry and dynamics of fire; including basic terminology and concepts that are applied to the physical and chemical properties of the development and spread of fire in a structure; hazardous materials and the Computer Fire Analysis.

**FSE 201. Building Construction. (3 Credits)**

A. A review of the analysis of building construction methods and terminology. A systems approach to designing building fire safety; the Life Safety Code; the function of and testing of rated building components, evaluating plans for code compliance.

**FSE 201S. Building Construction. (3 Credits)**

A. A review of the analysis of building construction methods and terminology using a service learning approach. A systems approach to designing building fire safety; the Life Safety Code; the function of and testing of building components, evaluating plans for code compliance. Credit will not be awarded for both FSE 201 and FSE 201S.

**FSE 221. Fire Detection and Suppression Systems. (3 Credits)**

A. Prerequisites: FSE 101, FSE 120. Introduction to fire detection, protection, control systems and extinguishment. Fixed and portable systems of the following types will be studied: automatic sprinklers, standpipes, dry chemical, foam, halogenated agents, fire alarm systems and diction.

**FSE 223. Fire and Emergency Scene Operations. (3 Credits)**

A. Prerequisite: FSE 201 or FSE 201S. Principles of Incident Management including emergency scene decisions, strategies, and tactics. Utilizing emergency control resources such as personnel, apparatus, and equipment.

**FSE 224. Human Behavior In Fire. (3 Credits)**

Prerequisites: FSE 101 and FSE 120. Examine current and past research on human behavior, systems models, life safety education and building design to determine interactions emergency situations. Develop a best practice building life safety system.

**FSE 225. Legal Aspects of Fire Protection. (3 Credits)**

A. A study of legislative and legal decisions relating to personnel practices, employee safety, and public protection. Emphasizes the legal responsibilities, liabilities, and authority of the fire service practitioner.

**FSE 230. Fire Prevention Organization and Management. (3 Credits)**

A. Prerequisite: FSE 101. An introduction to management issues related to fire prevention systems. Overview of the requirements for fire prevention codes, managing inspections, relations with public and officials and implementation of fire education programs.

**FSE 250. Introduction to Explosion Investigations and Bombings. (3 Credits)**

A. Introduction to explosion investigations and bombings. Topics include a historical overview of terrorism statutes, sources of information, the federal role in explosion investigation, explosives and improvised explosive devices.

**FSE 260. Proving Criminal Acts. (3 Credits)**

A study of crimes and the methodical steps in the investigation and proving of criminal acts. Explore defenses/legal remedies to enable the student to understand the obligations of managing an investigation.

**FSE 280. Constitutional Criminal Procedure. (3 Credits)**

Examines the legal implications of obtaining evidence directly from the suspect. Fourth, Fifth, and Sixth Amendments, and rules of evidence are discussed as they relate to the investigation of criminal acts.

**FSE 300. Technical Report Writing for Emergency Services. (3 Credits)**

A. Prerequisite: ENG 102. Develop oral and written communication skills specific to the public emergency service sector's needs. Focusing on the technical aspects involved in supporting public initiatives operating within the legal system and learning the specific requirements for submitting documentation to various technical committees. Credit will not be awarded to students who have credit for FSE 300 and 300W.

**FSE 300W. Technical Report Writing for Emergency Services. (3 Credits)**

A. Prerequisite: ENG 102. Develop oral and written communication skills specific to the public emergency service sector's needs. Focusing on the technical aspects involved in supporting public initiatives operating within the legal system and learning the specific requirements for submitting documentation to various technical committees. Credit will not be awarded to students who have credit for FSE 300 and 300W.

**FSE 305. Fire Protection and Hazardous Materials. (3 Credits)**

A. Prerequisite: FSE 120. Study of hazardous material problems in transportation, storage, and use. Chemical properties relating to specific reactions, engineering controls, and control in an emergency situation. Emphasis on the role of pre-emergency planning, combating, coordinating, and controlling a hazardous materials incident.

**FSE 310. WMD/Hazardous Materials. (3 Credits)**

A. Study of different Weapons of Mass Destruction (WMD) materials, deployment, and use. Evaluation of hazardous materials, usage, storage, and transportation. Preventing and controlling WMD/Hazardous Materials incidents.

**FSE 320. Principles of Emergency Services. (3 Credits)**

A. An overview of organizational and management practices in the fire and safety fields. Emphasis on supervision and leadership styles, motivation, morale, and organizational behavior.

**FSE 322. Water-Based Fire Protection Systems Design. (3 Credits)**

A. Prerequisite: FSE 221. Analysis and evaluation of specific code requirements related to the design, inspection, testing and maintenance of water-based fire protection systems. Design projects will be included.

**FSE 330. Principles of Criminal Investigation. (3 Credits)**

Prerequisites: FSE 300 or FSE 300W, FSE 260, and FSE 280. A detailed study of the investigative procedure as it applies to fire, arson, explosion and other personal property crimes.

**FSE 349. Applied Learning in Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 and OSH 349.

**FSE 349A. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349B. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.



**FSE 349C. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349D. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349E. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349F. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349G. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349H. Cooperative Study: Fire and Safety Engineering. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 349J. Co-op or Appl Lrn: Fire/Safety. (1-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 A-N and OSH 349 A-N.

**FSE 350. Fire Arson and Explosion Investigation. (3 Credits)**

A. Prerequisite: FSE 120. An in depth study in the analysis of fire, arson, and explosion scenes. Emphasis will be placed on the principles and techniques of scene preservation and analysis, management of investigative functions, documentation of the scene, and determination of the cause and origin of fire.

**FSE 355. Fire Dynamics. (3 Credits)**

A. Prerequisites: CHE 101 or higher, FSE 120, and MAT 114. An introduction to fire-related measurement techniques, advanced fire and combustion concepts and associated terminology. This courses includes basic numerical methods for understanding fire dynamics.

**FSE 360. Fire Protection Hydraulics and Water Supply. (3 Credits)**

A. Prerequisites: FSE 120 and MAT 107 or higher. A study of water at rest and in motion, Bernoulli's and Pascal's theorems; water distribution systems, velocity, friction loss, pump and nozzle pressures required for fire protection.

**FSE 365. Instructional Methodology for Emergency Service. (3 Credits)**

A. Course provides students with opportunities to develop presentation skills used in classroom instruction. Develop lesson plans, prepare audio-visual aids and props for the class. Prepare evaluation methodologies that competently assure learning objectives during delivery of presentations.

**FSE 370. Electrical and Mechanical Systems Failure Analysis. (3 Credits)**

A. Overview of design criteria for electrical and mechanical systems and components relative to fire safety via laboratory experiments, exemplar components and photographs that depict system and component failures that result in fire. Learning opportunities include engaging in destructive and nondestructive analysis of components and systems.

**FSE 375. Emergency Services Resource Management. (3 Credits)**

A. Introduction to management issues related to obtaining and accounting for resources. Included are financial management processes, acquisition strategies, strategies for maintenance of effort and resource prioritization, resource replacement planning and processes to audit program success.

**FSE 380. Failure Analysis. (3 Credits)**

A. Prerequisite: FSE 370. An in-depth study of fire and arson investigations. Emphasis will be placed on the principles and techniques of scene preservation, failure analysis, report writing, and determination of cause and origin.

**FSE 400. Advanced Emergency Services. (3 Credits)**

A. Prerequisites: FSE 300 or FSE 300W and 320. A study of environmental management including the identification and analysis of key managerial issues confronting contemporary fire services managers. Application in current methods and planning, organizing, developing and evaluating public fire/emergency services organizations.

**FSE 425. Disaster & Community Fire Defense Planning. (3 Credits)**

A. Prerequisite: FSE 300 or FSE 300W. Overview of the ever changing demographics of the departmental jurisdictions and response during community service master planning, identifying hazards then assessing risks associated with those hazards. Analysis of potential disaster and recovery methods.

**FSE 445. Advanced Structural Fire Protection. (3 Credits)**

Prerequisite: FSE 355 (C). Examines principles involved in structural fire protection: behavior of materials and design considerations for each material in regards to a structure's design under fire attack and resistive protection methods.

**FSE 450. Advanced Explosion and Bombing Investigation. (3 Credits)**

A. Prerequisite: FSE 250 and FSE 380. An in-depth study of explosion scene investigation. Emphasis will be placed on the principles and techniques of scene preservation analysis, management of investigative functions, documentation of scene, and determination of the cause of explosions.

**FSE 480. Industrial Fire Safety. (3 Credits)**

Prerequisites: FSE 101, FSE 120 and FSE 360. Fire scenario analyses for industrial installations using test data, loss experience and simplified theoretical modeling focusing on warehousing, storage of flammable liquids and safety of electrical equipment and computers.

**FSE 481. Fire Protection Design. (3 Credits)**

Prerequisite: FSE 445. Comprehensive project emphasizing a team approach to the design process. Problem formulation; project management; drawings and specifications; cost estimating; and various project components. Engineering and professional ethics.

**FSE 489. Topical Seminar. (1-3 Credits)**

A. Prerequisite: Departmental approval. Development and presentation of research in contemporary methods, techniques, and devices in the field. May be retaken under different topics to a maximum of 12 hours.

**FSE 490. Fire/Safety Research & Evaluation. (3 Credits)**

A. Prerequisite: senior standing. Development of competency relating to concepts of fire and safety research analysis. Each student develops a research design and carries out a study project. Individual studies are culminated with project paper and presentation.

**FSE 495. Fire Arson and Explosion Case Preparation. (3 Credits)**

A. Prerequisite: FSE 450. Preparation of the fire, arson, and explosion case for trial, including preparation of demonstrative evidence, scene documentation for presentation, rules of evidence, case review and analysis, and testimony.

**FSE 496. Fire Investigation Case Preparation. (3 Credits)**

Prerequisite: FSE 450. Preparation of the fire and arson case for trial, including preparation of demonstrative evidence, scene documentation for presentation, and testimony.

**FSE 498. Independent Study. (1-3 Credits)**

A. Prerequisite: Departmental approval. Individual reading and research on a problem or area within the field of Fire and Safety, after student consultation with the instructor. Student must have the independent study proposal form approved by faculty supervisor and department chair prior to enrollment. May be retaken to a maximum of six hours providing the project title differs.

**FSE 499. Practicum. (1-12 Credits)**

A. Prerequisite: departmental approval. Supervised field observation, research, and/or experience.

**Homeland Security****HLS 101. Introduction to Homeland Security. (3 Credits)**

A. Principles and practices associated with the emerging discipline of homeland security. Policies, directives, national plans, and legislation that shape and define the ongoing evolution of homeland security. Key issues including civil liberties and diversity. Relationship to public safety, private security, and national security.

**HLS 210. Cyber and Physical Security. (3 Credits)**

A. Principles of cyber and physical design and application to include assessments and subsequent identification of countermeasures as well as policy development and implementation in an effort to safeguard life and critical infrastructure. Credit will not be awarded for both APS 210 and SEC 210.

**HLS 260. Disaster Preparedness & Response. (3 Credits)**

A. Examines disaster preparedness and response context, concepts, theories, principles, programs and requirements. Students apply course concepts using case studies and real-world scenarios. Formerly HLS 451.

**HLS 280. Mis-, Dis-, and Malinformation. (3 Credits)**

A. Examines Mis-, Dis-, and Malinformation (MDM) from a homeland security perspective. Students build skills in assessing and evaluating information from social media and other information sources.

**HLS 301. Critical Infrastructure Protection. (3 Credits)**

A. Identification, prioritization, and protection of critical infrastructure including information technology, telecommunications, chemical, transportation, energy, water, medical, emergency services, postal and shipping. Impact on personal safety and economic performance.

**HLS 310. Personnel Security. (3 Credits)**

(3) A. Formerly SEC 250. Examines employee and contractor integrity through background screening, security awareness, ethics programs, and audits. Analyzes special programs to protect key personnel, employees in high risk environments and workplace violence mitigation. Credit will not be awarded to students who have credit for SEC 250.

**HLS 320. Security Management. (3 Credits)**

A. Prerequisite: Junior or Senior standing or departmental approval. Evolution and application of traditional and current theories in leading and managing corporate and government/industrial security operations. Areas covered include management, supervision and leadership of a security organization.

**HLS 349. Applied Learning in HLS. (0.5-12 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, a minimum of 30 hours completed. The student works under faculty and field supervisors in placements related to the student's academic studies. A minimum of 80 hours work required for each academic credit. May be retaken to a maximum of twelve hours.

**HLS 349A. HLS Cooperative Study. (1-12 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, a minimum of 30 hours completed. The student works under faculty and field supervisors in placements related to the student's academic studies. A minimum of 80 hours work required for each academic credit. May be retaken to a maximum of twelve hours.

**HLS 349B. HLS Cooperative Study. (0.5-12 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, a minimum of 30 hours completed. The student works under faculty and field supervisors in placements related to the student's academic studies. A minimum of 80 hours work required for each academic credit. May be retaken to a maximum of twelve hours.

**HLS 349C. HLS Cooperative Study. (0.5-12 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, a minimum of 30 hours completed. The student works under faculty and field supervisors in placements related to the student's academic studies. A minimum of 80 hours work required for each academic credit. May be retaken to a maximum of twelve hours.

**HLS 349D. HLS Cooperative Study. (0.5-12 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, a minimum of 30 hours completed. The student works under faculty and field supervisors in placements related to the student's academic studies. A minimum of 80 hours work required for each academic credit. May be retaken to a maximum of twelve hours.

**HLS 350. Workplace Investigations. (3 Credits)**

A. Prerequisite: Junior or Senior standing or departmental approval. Overview and management of criminal, civil, administrative, and internal investigative processes in the workplace, to include interviews, reports, and ethical and legal considerations related to investigations.

**HLS 391. Risk Analysis. (3 Credits)**

A. History and process of risk analysis and management as it relates to the protection of critical assets and infrastructure. Instruction in common techniques used in both the public and private sectors.

**HLS 395. Homeland Security Policy Analysis. (3 Credits)**

A. Prerequisites: HLS 101, HLS 210, and HLS 260; ENG 102 or 102R or HON 102 with a minimum grade of "C" or ENG 105 with a minimum grade of "B"; and HLS major or departmental approval. Develop homeland security policy and legal research and analytic skills. Includes coverage of international and U.S federal, state and local policy and legal issues. Credit will not be awarded to students for both HLS 395 and 395W.

**HLS 395W. Homeland Sec. Policy Analysis. (3 Credits)**

A. Prerequisites: HLS 101, HLS 210, and HLS 260; ENG 102 or 102R or HON 102 with a minimum grade of "C" or ENG 105 with a minimum grade of "B"; and HLS major or departmental approval. Develop homeland security policy and legal research and analytic skills. Includes coverage of international and U.S federal, state and local policy and legal issues. Credit will not be awarded to students for both HLS 395 and 395W.

**HLS 400. Evolution of the U.S. Intelligence Community. (3 Credits)**

A. Evolution of the US intelligence community from the American Revolution to today.

**HLS 401. Intelligence Process. (3 Credits)**

A. Key questions facing the U.S. intelligence community and its role in homeland security, national defense, and international affairs, with a focus on policy, oversight and intelligence support. Collection, analysis, sharing and dissemination of information within and between local, state, and federal government agencies and the private sector.

**HLS 402. Counterintelligence. (3 Credits)**

A. History, structure and operations of the US counterintelligence community. Includes legal foundations of counterintelligence and critiques of recommended changes to the community.

**HLS 403. Intelligence Analysis. (3 Credits)**

(3) A. Examines processes used at local, state and federal levels to conduct intelligence analysis and develop intelligence products. Includes advanced instruction in intelligence structured analytic techniques.

**HLS 430. Terrorism and Violent Extremism. (3 Credits)**

A. Coverage of politically-motivated extremist violence in the United States. Includes discussion of definitional issues, radicalization, major attacks, current threats, and principal extremist groups and ideologies.

**HLS 435. HLS Special Topics. (3 Credits)**

A. Study of contemporary issues and special topics in homeland security. May be retaken to a maximum of twelve hours under different subtitles.

**HLS 441. Homeland Security Technology. (3 Credits)**

A. Broad overview of homeland security technology. Technology as a tool to support homeland security regardless of functional specialty. Contribution of technology to deterrence, preemption, prevention, protection, and response.

**HLS 445. HLS Field Experience. (1-12 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, and a minimum of 30 hours completed. This course is designed to broaden the educational experience through appropriate observational work assignments in cooperating agencies. A minimum of 80 hours of observation is required for each academic credit. May be retaken to a maximum of twelve hours.

**HLS 455. HLS Independent Study. (1-6 Credits)**

A. Prerequisites: Department Chair approval, a minimum GPA of 2.0, a minimum of 30 hours completed. Individual reading and research on a problem within the field of homeland security. Students must have independent study proposal form approved by faculty supervisor and department chair prior to enrollment. May be retaken to a maximum of six hours.

**HLS 461. Disaster Resilience. (3 Credits)**

A. Concepts, theories, principles, programs, and requirements or pre- and post-disaster hazard mitigation; governmental programs, planning and practice; hazard and threat modeling and analysis; team building; case studies; project development.

**HLS 465. Unconventional Threats and Responses. (3 Credits)**

(3) A. The course addresses concepts, theories, laws and authorities, principles, programs, and requirements associated with unconventional threats to our nation that most likely would result in mass casualties, and pose large-scale responses and cascading threats.

**HLS 491. Disaster Planning and Exercises. (3 Credits)**

(3) A. Prerequisite: HLS 260. Emergency planning requirements, methods and applications for all levels of government and business, including hazard mitigation and emergency operations planning; also considers planning for universities, colleges and secondary schools.

**HLS 495. Leadership and Ethics. (3 Credits)**

A. Prerequisite: Senior standing or departmental approval. Examines theories and practical applications of leadership and ethical decision making. Senior capstone course requiring synthesis of prior course work in homeland security.

**Occupational Safety****OSH 110. Introduction to Safety Studies. (3 Credits)**

A. Students will develop the necessary writing, study, research, and Blackboard navigation skills. Topics include history of OSHA, safety ethics, basic hazard identification and analysis, and safety profession and hazard reports.

**OSH 200. Measures of Safety Performance. (3 Credits)**

A. Strategies and methods for calculating, analyzing, interpreting and communicating safety performance data. Presents lagging and leading metrics of safety, quantitative and qualitative statistical techniques, descriptive and inferential statistics, correlations, and financial principles. Credit will not be awarded for both OSH 200 and FSE 200.

**OSH 225. Legal Aspects of Occupational Safety. (3 Credits)**

A. Study of the OSH Act, OSHA standards, correlating laws and legislation impacting the safety function and employee safety. Emphasis on legal rights, responsibilities, legal risks, liabilities, scope of authority, ethical/professional standards for safety professionals. Credit will not be awarded for both OSH 225 and FSE 225.

**OSH 261. Principles of Occupational Safety and Health. (3 Credits)**

A. Prerequisite and/or Corequisite: OSH 110. Formerly: OSH 361. History of the development of occupational safety and health. Methods of accident prevention and hazard control. Introduction to safety programs, worker's compensation, emergency preparedness and accident investigation. Credit will not be awarded for students who have credit for OSH 361 or FSE 361.

**OSH 262. Principles of Occupational Safety and Health Legislation. (3 Credits)**

A. Formerly OSH 362. B. Prerequisite or Co-requisite: OSH 261 Review of OSHA standards with emphasis on compliance and liability reduction. Discussion of OSHA regulations including citations, penalties, inspections, and record keeping. Credit will not be awarded for both OSH 262 and OSH 362.

**OSH 300. Safety Training Strategies. (3 Credits)**

I, II, and A. Formerly OSH 450. Prerequisite: OSH 261. Students will learn how to apply adult learning and technical training strategies to occupational training programs for management and workforce safety related topics. Credit will not be awarded for both OSH 450 and OSH 300.

**OSH 305. Hazardous Materials. (3 Credits)**

A. This course introduces students to the anticipation, recognition, evaluation management, and control of hazardous materials through focusing on applicable general industry standards 29 CFR 1910 Subpart H. Topics include HAZWOPER, Compressed Gasses, Flammable and Combustible Liquids requirements, and others.

**OSH 349. Applied Learning in Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit. Credit will not be awarded for both FSE 349 and OSH 349.

**OSH 349A. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349B. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349C. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349D. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349E. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349F. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349G. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349H. Cooperative Study: Occupational Safety. (0.5-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 349J. Coop Study OSH. (1-8 Credits)**

A. Prerequisite: departmental approval. Work in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate; sixteen, baccalaureate. A minimum of 80 hours employment required for each semester hour credit.

**OSH 350. Measures of Safety Performance. (3 Credits)**

A. Formerly OSH 200. Prerequisite: OSH 261. Strategies and methods for calculating, analyzing, interpreting and communicating safety performance data. Presents lagging and leading metrics of safety, quantitative and qualitative statistical techniques, descriptive and inferential statistics, correlations, and financial principles. Credit will not be awarded for both OSH 200 and 350.

**OSH 366. Hazard Identification and Control. (3 Credits)**

A. Prerequisite: OSH 261 with a grade of C or higher or departmental approval. Hands-on approach toward identification and control. Areas of study include noise levels, chemical and electrical hazards, air contaminants, and heat/cold stress. Control measures include administrative, engineering, and safeguarding methods. Credit will not be awarded for both OSH 366 and FSE 366.

**OSH 367. Human Factors in Occupational Safety. (3 Credits)**

(3) A. Prerequisite or Co-requisite: OSH 261. Focuses on ergonomics, man/machine interface and human efficiency. Study of work-related stress, psychological factors, and Cumulative Trauma Disorders. Solutions are reviewed for common problems found in labor-intensive operations. Credit will not be awarded for both OSH 367 and FSE 367.

**OSH 370. Process Safety Management. (3 Credits)**

I, II, and A. Prerequisite: OSH 366. This course is designed to introduce the occupational safety student to the process safety management standard, 29 CFR 1910.119, and cover complex management topics involved in managing processes of highly hazardous chemicals.

**OSH 379. Construction Safety. (3 Credits)**

A. An in-depth analysis of the federal and Commonwealth of Kentucky's OSHA requirements for construction safety. Credit will not be awarded for both OSH 379 and FSE 379.

**OSH 390. Workers Compensation. (3 Credits)**

A. Comprehensive study of workers' compensation. Topics range from coverage to claims, including in-depth study of the legal, no-fault, exclusive remedy nature of claims; underwriting and experience rating; business loss control measures; and loss control profession. Credit will not be awarded for both OSH 390 and FSE 390.

**OSH 410. Safety Management Systems. (3 Credits)**

I, II, and A. Prerequisite: ENG 102, 105, or HON 102; OSH 261. This writing-intensive course is designed to provide the student with the knowledge and skills to apply safety management systems components, hazard analysis, and causal analysis. Credit will not be awarded for both OSH 410 and OSH 410W.

**OSH 410W. Safety Management Systems. (3 Credits)**

I, II, and A. Prerequisite: ENG 102, 105, or HON 102; OSH 261. This writing-intensive course is designed to provide the student with the knowledge and skills to apply safety management systems components, hazard analysis, and causal analysis. Credit will not be awarded for both OSH 410 and OSH 410W.

**OSH 412. Safety Management Systems. (3 Credits)**

A. Prerequisite or Co-requisite: OSH 410W (C). Effective management and leadership principles applied to safety. Emphasis on developing organizational culture, key roles of safety professionals and preventing serious injuries. Strategies include identifying business concepts for safety, gaining meaningful employee engagement, and program development. Credit will not be awarded for both OSH 412 and FSE 412.



**OSH 420. Environmental Law and Management. (3 Credits)**

I, II. Formerly FSE 420. Review/analysis of laws affecting workplaces, including the Clean Water Act, Clean Air Act, RCRA and CERCLA. Additionally, study of these laws and related policies/practices will be covered as related to safety. Credit will not be awarded to students who have credit for FSE 420 or EHS 425.

**OSH 450. Safety Training Strategies. (3 Credits)**

I, II, and A. Students will learn how to apply adult learning and technical training strategies to occupational training programs for management and workforce safety related topics.

**OSH 489. Topical Seminar. (1-3 Credits)**

I, II, and A. Development of special skills and content knowledge of contemporary issues in occupational safety. May be retaken to a maximum of six hours, provided the subject matter differs each time.

**OSH 495. Senior Capstone. (3 Credits)**

Prerequisite: OSH 410 or 410W with a grade of C or better. Students examine case studies, examine real life situations, combine knowledge they have gained from previous coursework, analyze and develop strategies, develop countermeasures, engage in strategic planning and policy development and training.

**OSH 498. Independent Study. (1-3 Credits)**

A. Prerequisite: Departmental approval. Individual reading and research on a problem or area within the field or Occupational Safety, after student consultation with the instructor. Student must have the independent study proposal form approved by faculty supervisor and department chair prior to enrollment. May be retaken to a maximum of six hours providing project title differs.