FST1077 - PROBLEM SOLVING FOR EMERGENCY RESPONDERS

3 credit hours

(Eric Reiners)

This course is a comprehensive course designed to teach you fundamental skills in algebraic functions utilized in today’s fire service. This is a required course for all BS degree seeking students. This course covers a great deal of very important material that will directly apply to future courses in the FS curriculum as well as your career in the fire service. All of the material in this course can be utilized in the fire service in various capacities and applications; from advanced hydraulic calculations to resource capacity and quantitative risk analysis you will develop skills to justify large scale purchases and operational changes through objectively based reports and logic.

Student Learning Outcomes
Upon completion of this course, students will be able to:
1) Use math to assess response times and look at how staffing may impact response.
2) Have the math skills needed to compare injury rates by various groupings.
3) Forecast the value of a collective bargaining contract.
4) Assess station locations and apparatus type response capabilities using quantifiable data.
5) Quantify resources needed to mitigate a large-scale response.

Fire Tactics examines fire department response to structure fires. The purpose of the course is to develop Incident Command skills in analyzing situations (size-up), developing a strategic plan suited to a specific structure fire incident, then commanding and controlling operations in implementing a strategic plan through task assignments (deployment). Risk/Benefit analysis and rate of flow are the two primary methods used to develop strategic plans. Students should have prior firefighting experience or be on a fire department to take this class.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Discuss fire behavior as it relates to strategies and tactics.
2) Explain the main components of pre-fire planning and identify steps needed for a pre-fire review.
3) Identify the basics of building construction and how they interrelate to pre-fire planning and strategy and tactics.
4) Describe the steps taken in size-up, and utilize information obtained through size up to perform a risk benefit analysis.
5) Identify the roles of the National Incident Management System (NIMS) as it relates to strategies and tactics and apply NIMS in commanding and coordinating simulated fire responses.

A first responder’s ability to recognize an incident involving hazardous materials is critical. They must possess the knowledge required to identify the presence of hazardous materials, and have
an understanding of what their role is within the response plan. This course will provide the student with these skills and enable them to keep themselves and others safe while mitigating these potentially deadly incidents.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Define a hazardous material.
2) Describe the health hazards associated with hazardous materials and the recommended ways to manage incidents involving them.
3) Describe the identification system, and the command and decision-making procedures that should be followed at a hazardous materials incident.
4) Identify the types of equipment used for transporting hazardous materials via railroad, truck, pipeline, aircraft and water.
5) Describe the types of accidents that can occur with these various forms of transports.

(FST2069 - FIRE DETERMINATION STRATEGIES
3 credit hours

Nathan Bromen)

This course covers a comprehensive overview of fire investigations, including fundamental fire behavior, fire scene investigation, scientific methodology used in fire investigations, documentation of the fire scene, current industry trends, evidence analysis and preservation, report compilation, and courtroom preparation.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Apply the fundamentals of the scientific methodology in fire investigation.
2) Identify the fundamentals of fire behavior and subsequent pattern analysis.
3) Identify, classify, eliminate and determine sources of ignition.
4) Describe the fire cause indicators found in building fires, vehicle fires and electrical fires.
5) Identify resources including lab analysis, law enforcement and governmental; agencies to assist in the prosecution of the crime of arson.

(FST2079 - FIREFIGHTER SAFETY & RISK MANAGEMENT
3 credit hours

Brian Carlson)
This course introduces the basic concepts of occupational health and safety as it relates to emergency service organizations. Topics include risk and hazard evaluation, control procedures for emergency service organizations, the national firefighter life safety initiatives, the need for cultural and behavioral change throughout the emergency services, and establishing a plan to fully implement NFPA 1500 Standard on Fire Department Occupational Safety and Health for a public fire department of their choice. *If student is not an active firefighter, must establish a mentor who is a FD Officer.*

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Define and describe the need for cultural and behavioral changes within emergency service.
2) Explain the need for enhancements of personal and organizational accountability for health and safety.
3) Define how the concepts of risk management affect strategies and tactical decision making.
4) Formulate an awareness of how adopting standardized policies for responding to emergency scenes can minimize near misses, injuries, and fatalities.
5) Defend the need for annual medical evaluations and the establishment of physical fitness criteria.

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**FST3019 - BUILDING CONSTRUCTION IN FIRE SERVICE**

3 credit hours

*(Brian Carlson)*

The student is introduced to the principles, methods, techniques and terminology used in building construction and how building construction relates to fire protection and fire safety. The elements of construction and engineering design of structures relating to fire protection is emphasized. Structural components and structural collapse are studied as well as case studies in fire and life safety. The different classifications of buildings and how building construction and codes affect fire and life safety are discussed.

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Describe the principles and methods of construction and how they relate to life and fire safety.
2) Explain engineering and construction principles and the different loads and stresses exerted on a building in their relation to life and fire safety.
3) Compare the characteristics and types of materials used in the construction of buildings and how they react in fire conditions.
4) Recognize the different structural components of buildings and their reactions under fire conditions.
5) Differentiate the different types of construction and how each responds to fire conditions

FST3021 - TERRORISM AWARENESS & PLANNING
3 credit hours

(Larry Bennett)

A comprehensive study of terror including technical, historical, governmental and psychological issues for emergency management personnel. If student is not an active firefighter, must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Identify the legal and political issues concerning the prevention of terrorist activities in our Nation and in your local community.
2) Describe terrorist events that have occurred in the United States and overseas that may occur in your community.
3) Analyze and apply United States statutes and court decisions applicable to identifying and prosecuting domestic terrorists.
4) Formulate political and legal recommendations based on the analysis.
5) Locate and apply legislation and recent court decisions utilizing online resources.

FST3071 - DATA ANALYSIS & STATISTICS FOR FIRE & EMS
3 credit hours

(Steve Stein)

This course is a comprehensive course designed to teach you fundamental skills in statistical analysis utilized in today’s fire service. This is a required course for all BS degree seeking
students. This course covers a great deal of very important material that will directly apply to future courses in the FS curriculum as well as your career in the fire service. All of the material in this course can be utilized in the fire service in various capacities and applications; from response time breakdown to resource capacity and quantitative risk analysis you will develop skills to justify large scale purchases and operational changes through objectively based reports and logic.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Use statistical analysis to determine whether it is more expensive to employ firefighters today as it was in years past.
2) Utilize Microsoft Excel to produce charts and graphs that explain data trends often utilized by fire administration, city managers and other officials.
3) Understand how to quantify response capabilities, thus determining current versus perceived departmental needs.
4) Review and quantify firefighter fatalities by department type, allowing you to answer: What puts your firefighters at greater risk, lack of seatbelts or effective engine company fundamentals?
5) Use empirical data to compare your fire department to others across the country to provide your agency with a barometer for performance.

FST3080 - FIRE & EMERGENCY SERVICES ADMINISTRATION
3 credit hours

(Randall Hanifen)

Examines organization and management in the fire service, including new technologies, changing organizational structures, personnel and equipment, municipal fire protection planning, manpower and training, and financial management. If student is not an active firefighter, must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Discuss the importance of disaster planning, preparation, and mitigation, evaluate the hazard assessment processes and the role of the firefighter in community disaster planning and recovery
2) Assess hazard response and planning procedures, and define the impact of hazard occurrence on community response.
3) Define the parameters and effectiveness of an Emergency Operations Plan (EOP) and its components, differentiate the multi-level agency responsibilities in disaster mitigation, and
4) Define the relationships between disaster planning, mitigation, and recovery.
5) Given disaster specifics, develop a plan of action based on historical events and community parameters.

FST3081 - ANALYTICAL APPROACHES TO PUBLIC FIRE PROTECTION
3 credit hours

(Demond Simmons)
Lead Prof

(Adam Howard)

This course will provide you with many of the analytical tools necessary to evaluate your options and to make intelligent, well-informed decisions that will enable you to offer the best service to your community and to the members of your organization. By the end of this course, you will be able to select and apply the appropriate statistical and quantitative tools and techniques of analytical decision-making in the context of the fire and emergency services agencies.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Use critical thinking, systems analysis, rational examination, logical reasoning, and other scientific management tools to solve problems and seek system improvements.
2) Select three distinct analytical or systems approaches to apply to a local issue or decision in fire and emergency services management.
3) Utilize and select appropriate analytical, mathematical, qualitative and quantitative tools, principles, and methods for decision-making for the fire and emergency services.
4) Define a problem, collect and display data and statistics, and evaluate the results.
5) Apply and utilize GIS software to help identify and solve problems associated with fire and emergency service delivery.
FST3082 - FIRE PREVENTION ORGANIZATION & MANAGEMENT
3 credit hours

(Doug Wehmeyer)

Examines the factors that shape fire risk and the tools for fire prevention, including risk reduction education, codes and standards, inspection and plans review, fire investigation, research, master planning, various types of influences, and strategies.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Describe aspects of risk reduction education and overall community risk reduction.
2) Explain the fundamental aspects of codes and standards, and the inspection and plan review process.
3) Describe the fire investigation process and discuss fire prevention research.
4) Discuss historical and social influences and describe the master planning process.
5) Describe economic and governmental influences on fire prevention.

FST3083 - FIRE PROTECTION STRUCTURE & SYSTEMS
3 credit hours

(William “BJ” Jetter)

The design principles involved in the protection of a structure from fire involvement are examined. Examines design principles involved in structural fire protection and automatic suppression systems, including fire resistance and endurance, flame spread evaluation, smoke control, alarm systems, sprinkler innovations, evaluation of sprinkler system designs, and specialized suppression systems. You should have a good solid math background before taking this course.

Student Learning Outcomes
Upon completion of this course, students will be able to:
1) Analyze building structural components for fire endurance and fire resistance.
2) Understand the flame spread and smoke production properties of building furnishings and materials.
3) Analyze, evaluate, and determine appropriate use for fire detection and alarm systems; water-based fire suppression systems.
4) Discuss special hazard fire suppression systems; and smoke management systems, with a sophisticated understanding of how they integrate to function as a complete life safety system.
5) Describe the fundamental principles related to structural fire protection, building furnishings, and fire protection systems.

FST 3084 - COMMUNITY RISK REDUCTION FOR THE FIRE & EMERGENCY SERVICES
3 credit hours
[Dual course with FST 3042]

(Mark Fyffe - Lead Prof)

(Richard Braun)

Examines concept of community sociology, the role of fire related organizations within the community and their impact on the local fire problem, including fire service relationships within the community and other agencies, developing a community inventory, shaping community policy, master planning and shaping community perceptions about the local fire service.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Demonstrate a complete understanding of the sociological aspects of a community, the nature of the relationships between the elements of the community within themselves, the fire service and other public agencies.
2) Identify and define the changing mission of the fire service based on the needs and wants of the community as learned through research, the study of community inventory, census and extant data and survey tools.

3) Examine the relationships between the local fire service and other local, state and federal agencies that have the duties of emergency management that affect the fire service, including police department, water department, public works department, building department, County EMA, State EMA, State EPA, OSHA, and FEMA etc.

4) Identify and explain the factors that could result in a negative relationship between the fire service and the various elements of the community and state and federal partners as well as the crisis resolution techniques.

5) Identify and explain the relationships between the seven interactive components of the community recognizing the significance of the legislative and budget process as it relates to taxes, service, special interest groups and local politics.

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**FST3085 - POLITICAL & LEGAL FOUNDATIONS**

*3 credit hours*

*(Larry Bennett)*

Examines the government’s role in public safety, including the American legal system, laws and court decisions that impact homeland security, fire and EMS safety, public section personnel issues, drug-free workplaces, FLSA and HIPAA. *If student is not an active firefighter, must establish a mentor who is a FD Officer.*

**Student Learning Outcomes**

Upon completion of this course, students will be able to:

1) Identify potential legal and political issues in fire and emergency services.

2) Describe legal lessons learned from recent cases, and identify best practices in the fire service to avoid legal liability.

3) Analyze and apply legal rules and political issues to manage risk.

4) Formulate political and legal conclusions and recommendations based on the analysis.

5) Locate and apply recent legal and legislative online resources.
FST3087 - FIRE DYNAMICS
3 credit hours

(Brad French)

This course examines the underlying principles involved in structural fire protection systems, building furnishings, and fire protection systems including water-based fire suppression systems, fire alarm and detection systems, special hazard suppression systems, and smoke management systems.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Analyze building structural components for fire endurance and fire resistance.
2) Understand the flame spread and smoke production properties of building furnishings and materials.
3) Examine the effects of ventilation, flow path, and interior pressure differentials on fire development in a compartment.
4) Understand Scientific notation and unit conversion and how this affect fire progression.
5) Examine the effects of ventilation, flow path, and interior pressure differentials on fire development in a compartment.

FST3088 - FIRE SCENE RECONSTRUCTION
3 credit hours

(Nate Bromen)

This course is intended to provide the student with the fundamentals and technical knowledge needed in understanding reconstruction principles, fire pattern analysis, fire modeling, fire deaths and injury analysis. Examines fire scene reconstruction within the context of fire investigations and fire dynamics.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Analyze and understand smoke plumes and fire patterns.
2) Understand the various methods of fire death.
3) Understand the benefits of fire modeling.
4) Understand the relationship between fire development and the rate of heat release.
5) Describe arson and other motive-related considerations.
This course introduces principles and practices of budget and finance, and combines them with the methods and techniques of both oral and written communication. The course is intended to prepare students for tasks and challenges related to fire service financial management, and to effectively communicate those business-related matters either through presentations or documents. The course is to be delivered as a hybrid of distance learning and intensive lecture.

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Research, analyze, calculate and forecast budgetary matters.
2) Perform fundamental financial analyses and create financial reports.
3) Research, and identify additional funding sources, such as grant preparations.
4) Communicate budgetary, financial and business information in various documents.
5) Present budgetary and financial information orally or using other media.

This course provides the student with the knowledge base that is required to institute a true emergency medical response to hazardous materials incidents within their respective department. Topics include the medical aspects of hazardous materials response; chemical and toxicological information; effects on the body systems; injury & treatment; physiology and treatments of common poisonings. Students will gain an overview of the decontamination techniques, use of specialized equipment as they relate to haz-mat incidents and their use in an event involving terrorism. May be used as a technical elective or upper level fire service elective only.
Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Organize a final organizational matrix that is representative on the anatomy of emergency medical response to hazardous materials incident.
2) Demonstrate the role of EMS first responder from field application to the emergency department.
3) Identify the common terminology use by EMS and Hazardous Material Branch operations during emergency field operations.
4) Evaluate the primary modes of EMS operating under the operations branch during a hazardous material incident and working within the fire department structure.
5) Describe the role of first emergency responders being called to hazardous material/WMD event, and also determine how address pre-hospital emergency medical care and formulating the constraints of real time data and research by transfer electronic medical surveillance from the field to physician in the pre-hospital environment.

FST4071 - SAFETY MANAGEMENT
3 credit hours

(Bryan Haywood)

Introduction to OSHA, Worker’s Compensation, environmental, transportation, accident and product safety, risk management, policies, procedures and training.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Understand the role of the safety professional within an occupational safety and health program.
2) Identify loss control information and how to perform an analysis of the information.
3) Understand how safety and health programs and the safety management system should be structured.
4) Implement and maintain safety and health programs.
5) Understand Workers Compensation and Employee Assistance program.
With proper hazard identification and evaluation, management commitment and support, preventive and corrective procedures, monitoring, evaluation and training, unwanted events can be prevented. This course introduces a broad spectrum of topics, specific hazards, best practices, control procedures, resources, and sources of help known in the field of occupational safety today.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Describe how to incorporate safety in the design, construction, and maintenance of buildings.
2) Develop a program to introduce personal protective equipment (PPE).
3) Implement safe handling and storage of materials; and identify hazards associated with hoisting, conveying and hauling equipment.
4) Recognize occupational hazards with portable power tools, woodworking and metalworking machinery.
5) Identify characteristics of proper machine guarding.

An understanding of the fundamentals of industrial hygiene is very important to anyone involved in environmental, community, or occupational health. Students will learn how to plan and carry out programs to minimize occupational health hazards by recognizing, evaluating, and controlling those hazards.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Describe industrial toxicology.
2) Explain how exposure to occupational hazards affect the human body.
3) Identify methods to collect and analyze hazards associated with gases, vapors, noise, radiation and biological agents.
4) Describe personal protective equipment required in response to these hazards.
5) Describe methods to control airborne hazards through the use of local, dilution, and general ventilation.

FST4076 - PRINCIPLES OF ERGONOMICS
3 credit hours

(Mike Gabennesch)

This course will give the student a cursory exposure to the theory and application of Ergonomics principles while, at the same time, addressing the common issues associated with Ergonomics program implementation.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Describe Ergonomics;
2) Identify the physiological foundations of Ergonomics;
3) Apply anthropometrics and biomechanics to the physiological characteristics of the worker;
4) Describe the behavioral foundations of the Ergonomics process;
5) Develop an Ergonomic task analysis and risk assessment.

FST4077 - CONTEMPORARY ISSUES IN THE FIRE SERVICE
1 - 6 credit hours

(Randall Hanifen)

The purpose of this course is for the student to define and describe a current issue/problem in the fire and emergency services and address or solve the issue/problem. The student will use appropriate resources, references, tools and methods to logically solve and/or address the issue the student has chosen. Students receive 1 credit for each paper (minimum 6 pages) that the
student submits to satisfactory performance. Variable credit - students may sign up for 1-6 credit hours which may be used as technical electives toward the degree. If student is not an active firefighter or emergency service provider, the student must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Review latest NIST Fire Fighting Tactics studies & videos with information pertinent to the modern fire officer.
2) Identify key current issues in the fire service which are not yet covered in the existing textbooks.
3) Demonstrate the current and future relevance of these issues to a fire service decision maker.
4) Analyze interactive dialogue among the decision-makers whose stories are portrayed.
5) Apply lessons learned to one's own organization

FST4080 - DISASTER PLANNING & CONTROL
3 credit hours

(Randall Hanifen)

Examines concepts and principles of community risk assessment, planning and response to fire and natural disasters, including the Incident Command System (ICS), mutual aid and automatic response, training and preparedness, communications, civil disturbances, natural disasters, hazardous materials planning, earthquake preparedness, and disaster recovery. If student is not an active firefighter, must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Discuss the importance of disaster planning, preparation, and mitigation, evaluate the hazard assessment processes and the role of the firefighter in community disaster planning and recovery.
2) Assess hazard response and planning procedures, and define the impact of hazard occurrence on community response.
3) Define the parameters and effectiveness of an Emergency Operations Plan (EOP) and its components, differentiate the multi-level agency responsibilities in disaster mitigation, and
4) Define the relationships between disaster planning, mitigation, and recovery.
5) Given disaster specifics, develop a plan of action based on historical events and community parameters.
FST4081 - PERSONNEL MANAGEMENT FOR THE
FIRE
& EMERGENCY SERVICES

(Chris Eisele)

Examines relationships and issues in personnel administration and human resource development within the context of fire-related organizations, including personnel management, organizational development, productivity, recruitment and selection, performance management systems, discipline and collective bargaining. If student is not an active firefighter, must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Demonstrate and explain contemporary personnel management issues in Fire and EMS
2) Discuss the fair and equitable rules, procedures, policies and law that relate to personnel management issues.
3) Analyze and discuss alternative methods in the recruitment of new personnel.
4) Discuss two main issues concerning retirement of personnel.
5) Summarize how organizational development and leadership styles impact a particular Fire and EMS department.

FST4082 - APPLICATIONS OF FIRE RESEARCH

3 credit hours

(Nathan Bromen)

This Course prepares the student for identifying, locating, capturing, properly documenting, and applying research methodology, including various fire protection research activities and research applications, fire test standards and codes, structural fire safety, automatic detection and suppression, life safety, and firefighter health and safety, in order to increase credibility and acceptance of their work product. Diverse topics are reviewed and considered for the changing fire service.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Identify key components of research and the scientific method.
2) Conduct research projects on several fire-related topics and apply key process step.
3) Produce quality research reports to support fire department initiatives.
4) Document authoritative sources for increased credibility and project justification.
5) Analyze weaknesses in project documentation for improved results in proposals.

FST4083 - FIRE-RELATED HUMAN BEHAVIOR
3 credit hours

(Doug Wehmeyer)

Examines human fire behavior and beliefs as they relate to the fire and analyzes how these behaviors and beliefs contribute to the fire problem. Students will research fire alarm notification devices, current trends related to false and excessive fire alarm activations, and building egress systems. Research in this course will include residential, commercial, multi-family, dormitory, and assisted living/group home situations.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Apply knowledge to create a system that integrates human behavior factors into life safety planning and practice.
2) Identify how fire related human behavior contributes to the fire problem.
3) Analyze egress systems, including the use of elevators for building egress in emergencies.
4) Understand how psychology and sociology factors influence behavior.
5) Research and analyze trends in fire death statistics and fire cause data in the residential, commercial, and multi-family setting

FST4084 - FIRE INVESTIGATION & ANALYSIS
3 credit hours

(Randall Hanifen)

Examines technical, investigative, legal, and managerial approaches to the arson problem, including principles of incendiary fire analysis and detection, environmental and psychological factors of arson, gang-related arson, legal considerations and trial preparations, managing the fire investigation unit, intervention and mitigation strategies, and shaping the future. If student is not an active firefighter, must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:
1) Demonstrate a technical understanding of the characteristics and impacts of fire loss and the crime of arson necessary to conduct competent fire investigation and analysis.
2) Document the fire scene, in accordance with best practice and legal requirements.
3) Analyze the fire scenario utilizing the scientific method, fire science, and relevant technology.
4) Analyze the legal foundation for conducting a systematic incendiary fire investigation and case preparation.
5) Design and integrate a variety of arson related intervention and mitigation strategies.

FST4086 - MANAGERIAL ISSUES IN HAZARDOUS MATERIALS
3 credit hours

(Randall Hanifen)

Examines the regulator issues, hazard analysis, multi-agency contingency planning, response personnel and resources, agency policies, procedures and implementation, public education and emergency information systems, health and safety, command post dynamics, strategic and tactical considerations, recovery and termination procedures and program evaluation. The Incident Command System is applied to large scale hazardous materials emergencies. If student is not an active firefighter, must establish a mentor who is a FD Officer.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Explain and apply local, state, and federal regulations concerning hazardous materials.
2) Meaningfully participate in the process of planning, organizing, and training for response to hazardous materials/terrorist incidents.
3) Interpret and act on departmental responsibility for hazardous materials response preparedness, incident prevention, and incident response.
4) Identify and work with representatives of multiple services, levels of government, and organizations in an organized incident-management structure.
5) Develop an incident command organizational structure for a hazardous materials response using the guidelines set forth in the National Incident Management System (NIMS).
FST4088 - FIRE SCIENCE PORTFOLIO
1 credit hour

(Randall Hanifen)

The Portfolio course teaches students how to document state fire training, military training, and experiential learning into collegiate credit. Students must apply for pre-approval for Portfolio with the Director. A Portfolio evaluation may help you fulfill some of your degree requirements. This course is available for students who wish to receive college credit for experiential learning outside the classroom.

FST 4099 - INDEPENDENT RESEARCH IN FIRE SERVICE
1 - 6 credit hours

(Jim Dwertman)

Individually designed research projects based on student’s own fire department or community. Student must originate and submit an abstract to the instructor for prior approval before registering for this course. The Independent Research course focuses on the ability to design, plan and manage a research project; to collect and analyze information; to evaluate and make reasoned judgments; and to communicate findings and conclusion; thus providing the student with study skills, enhanced subject knowledge and a more general self-discipline in independent, self-directed study.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Identify a relevant problem and develop a problem statement, purpose statement, research questions, and decide on a research method by which the data gained from the research questions can be used to analyze the problem to answer the research questions.

2) Demonstrate the ability to organize, analyze, and document the data collection methodology including but not limited to surveys, personal interviews, personal observations, extant data and/or evaluative methodology. Evaluative research must employ the use of some type of methodology (e.g., a Statistical Method such as chi square)

3) Recognize and avoid bias in research and the importance of setting specific and measurable outcomes for any selected strategy used in collecting and analyzing the data.
4) Present a defendable answer to each of the research questions based on the analysis of the data collected.
5) Prepare, author and submit a professional paper following recognized guidelines (MLA, APA, Turabian, etc.) and the instructions outlined in the syllabus.

EMS ADMIN. COURSES

FST3040 - EMS RISK MANAGEMENT & SAFETY
3 credit hours

This course is designed to introduce the student to the risk management principles of an EMS agency with an emphasis on safety from the perspective of the field EMS provider. Students will be asked to apply various safety and risk management principles to their own organizations in an effort to improve their understanding of the importance of these concepts and their ability to participate in these processes in a meaningful manner.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Define risk management and differentiate this concept from the concepts of prevention and loss control.
2) Outline the steps that are required to conduct a comprehensive investigation into a workplace accident.
3) Identify five safety-related areas of concern within their organization that could be addressed or improved by the application of risk management principles and practices.
4) Identify and analyze the major causes of line-of-duty deaths related to health, wellness, fitness and vehicle operations in a manner that can be related and applied to the student’s organization.
5) Draft a model policy, procedure or guidance that can be implemented with their organization to address an area of safety or risk management that has not previously been addressed.
This is a National Fire Academy core course in the Fire and Emergency Services Higher Education program (FESHE). The course is a comprehensive course designed to provide education to ensure public trust by creating a safe, quality, effective and efficient experience for medical patients. Course materials and lessons learned can be utilized in emergency services in various capacities and applications to make improvements in the response, treatment and transportation of medical patients. Students will develop skills to measure and identify operational changes, identify protocol changes to make improvement of care, identify and justify needed resources for improvements and identify data to objectively benchmark progress. This is a required course for all students seeking a Bachelor of Science Degree in the EMS Administration Track. If a student is not an active firefighter or EMS provider, they must establish a mentor who is a fire or EMS Officer providing this service.

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Identify and apply the history, terminology and developments that have fostered EMS quality management and current health care reform.
2) Demonstrate competency in the structure, process and measuring outcomes for EMS Quality Improvement.
3) Analyze databases and apply the capturing of information and data for EMS quality management.
4) Examine and apply how to facilitate change or create a culture of quality.
5) Discuss and apply the legal aspects of EMS Quality Management.
This course provides a big picture overview of community-based programs to address public health issues. The course goes beyond the process of delivering basic EMS services such as staffing an ambulance, stocking the cabinets and budgeting, to review community-based risks that result in calls for service. The course will evaluate a broad range of risks such as issues of the elder (falls, accidental overdose) cardiac arrest (bystander CPR and community AED programs), drug addiction problems (heroin and meth overdoses), and other current and anticipated public health issues. The course will examine effective approaches to managing these risks; including not only EMS but other stakeholders and students will consider how to work collaboratively with these organizations.

**Student Learning Outcomes**

Upon completion of this course, students will be able to:

1) Analyze current public health issues that increase the demand of the emergency response system in a community of any size, including data collection and the identification of community stakeholders.

2) Identify or create effective programs to address public health issues, including programs to assist the elderly (falls, Accidental overdose), cardiac arrests (bystander CPR and community AED programs), drug addiction (heroin and meth overdoses), community paramedicine, and other health issues.

3) Formulate a comprehensive public education program to address a public health issue in the student’s community.

4) Prepare a business plan for a community risk reduction program for the student’s community, including a cost / benefit analysis.

5) Identify evaluation criteria to determine effectiveness of community risk reduction programs, including elimination of ineffective programs.
This course examines frequent callers to 911 for EMS services, and how some Fire/EMS agencies are finding unique solutions. Community paramedics interact and treat patients in changing ways engaging a wide variety of community resources to meet the needs of frequent users of the EMS system. Community paramedics are able to serve the patient and the community by providing a wider array of services more closely matched to the patient's need.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Describe Community Paramedicine programs around the Nation which effectively assist “frequent 911 callers.”
2) Explain the changes in protocol, and state laws and regulations, needed to practice Community Paramedicine in your state.
3) Compare and contrast Community Paramedicine programs that are Fire / EMS based, with those that are based at hospitals, social service agencies, or private EMS services.
4) Examine the financial and other impacts on your community’s Fire / EMS department if a Community Paramedicine program is launched in your service area.
5) Discuss the differences in patient advocacy between a paramedic who only responds to 911 calls and a community paramedic.
This is a technical elective course specifically designed for the Bachelor of Science in Fire & Safety Engineering Technology and EMS Administration degree programs. Topics focus on all aspects of EMS education including personal career development, educational program management, and industry advancement. This course will expose current national standards, as well as state laws and regulations that effect EMS. The history of the EMS industry will be revealed and the potential future will also be examined.

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Identify the personal attributes of a successful EMS provider, educator, leader, and mentor.
2) Analyze educational curriculums and certification requirements to achieve a position as an EMS provider and educator.
3) Identify the different types of EMS education programs and the requirements of each.
4) Realize the alternative career transition opportunities for an EMS provider to a Community Paramedic, Nurse, Physician’s Assistant, Physician, etc. Develop recommendations to further the future of the EMS industry within the overall healthcare system.

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FST3046 - EMS COMMUNICATIONS & IT
3 credit hours

(William “BJ” Jetter)

Graduates will be able to apply and demonstrate the principles of EMS Communication requirements and constraints following an open-ended decision process involving tradeoffs and
completing a synthesis and evaluation of the complexity of EMS Communications. Students will understand how the future of EMS Communication and IT will evolve into a seamless approach from the field to the emergency department.

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Organize a final organizational matrix that is representative on the anatomy of Emergency Medical Communication.
2) Demonstrate the communication role of Emergency Medical Service from field application to the emergency department.
3) Identify the common terminology use by Emergency Medical Service technicians and paramedic's during emergency field operations.
4) Evaluate the primary modes of Emergency Medical of EMS communications through various communications medians.
5) Describe the role of call talker dispatcher as it applies to pre-hospital emergency medical care and formulating the constraints of data collection and the transfer electronic medical surveillance from the field to Physician in the Pre-Hospital environment.

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**FST3047 – INTRO TO EMERGENCY MGT. & PUBLIC INFORMATION**
3 credit hours

(Kay Vonderschmidt)
Lead Prof.

(Gary Miller, Guest Speaker)

All disasters start locally and end locally; for this reason we will provide a course that teaches comprehensive emergency management. We will discuss each phase of emergency management and see how it is integrated on the local, State and federal level with other public service agencies. The discussion will continue with collaboration among all levels of government, social service agencies, nonprofits, private firms, faith-based organizations, volunteer organizations, public health, the media and others.
Lessons that will be reviewed will include: disaster history and lessons learned (utilizing disaster modeling analysis), hazard analysis, preparedness/planning, response strategies, legal issues, social vulnerabilities, budgeting, grants, recovery lessons learned, and mitigation.

**Student Learning Outcomes**
At the conclusion of this course, each student will be able to:
- Prepare a community’s hazard analysis.
- Evaluate and/or prepare a community against various types of disasters.
- Understand how to collaborate with all stakeholders before, during and after a disaster.
- Understand the local, State and federal process for all-hazards assistance.

**FST3048 - EMS SPECIAL OPERATIONS**
3 credit hours

*Robert Warfel*
Lead Professor

*Tim Sabransky*

*Kay Vonderschmidt*

*(Michael Hayes, upon grad. from PA School)*

This course focuses on special operation activities not common to everyday EMS operations. The expanding role of EMS in our nation and abroad requires special planning, training & education to prepare for changing and special needs such as mass casualty, terrorism, and tactical operations that exceed the normal scope of EMS. The importance of EMS special operation planning is such that the safety, health and well-being of both responders and the public hinges upon the level of preparedness of the response organizations and their ability to manage special events.
Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Identify unique planning requirements for special events and mass casualty incident response.
2) Analyze case examples and identify best practices regarding mass casualty response and preparedness.
3) Identify barriers and obstacles to all hazard response planning.
4) Formulate recommendations for effective integration and resource management.
5) Identify parallel and divergent goals and objectives for local, state, and federal agency preparedness particularly the relationship between law enforcement and Fire/EMS response.

FST3049 - MANAGEMENT OF TRANSPORT SERVICES
3 credit hours

(Mary Ahlers)

This course provides an overview of the application of management principles to the provision of transport services. It includes an analysis of the economic, geographic, temporal and clinical characteristics of ambulance demand, the key processes for providing transport services and an evaluation of industry best practices.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Examine the challenges and opportunities for transport services.
2) Determine key performance indicators of transport services.
3) Review and summarize EMS research and trends.
4) Identify funding models for the future of transport.
5) Discuss the integration of new technology to improve service and reduce risk
FST3050 - EMS FINANCE
3 credit hours

Dual course with FST 3092.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Research, analyze, calculate and forecast budgetary matters.
2) Perform fundamental financial analyses and create financial reports relating to financing an EMS system.
3) Research and identify additional funding sources, such as EMS billing, grant preparations and other available revenues.
4) Communicate budgetary, financial and business information in various documents.
5) Present budgetary and financial information for a significant capital EMS purchase orally, or using other media.
This course focuses on extracting and analyzing accurate data and applying the results towards the betterment of any EMS or Fire organization. Findings from this class may help initiate effective organizational change using various categories including: financial analysis; cost-benefit analysis; comparative analysis; quality improvement; strategic planning.

**Student Learning Outcomes**
Upon completion of this course, students will be able to:

1) Identify various aspects of data analysis, and utilize them for decision making.
2) Demonstrate an understanding of the statistical tools available when performing an analysis.
3) Develop the knowledge and skills needed to effectively investigate a problem, or gauge the value of a potential new opportunity.
4) Using an analytical approach, construct a process to address the issue at hand, and determine the most appropriate course of action for change or improvement.
5) Through the implementation of effective analysis techniques, the student’s input may be applied to strategic planning development for his/her respective EMS or Fire organization.
This course examines many aspects of building and managing an effective EMS system. This online program will require substantial reading, project work and interaction with your cohort team. Conceptual understanding and real-world application are outcome guideposts for learners. Computer access with a high speed internet connection and web cam are required. Offered Spring Semester only.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Understand the basic philosophy, organization and operation of injury prevention and risk-reduction programs.
2) Define the differences between management and leadership.
3) Understand the principles of customer service in EMS.
4) Identify and apply the techniques for conducting an effective performance appraisal.
5) Apply quality improvement techniques to various aspects of EMS operations.

This course examines the legal aspects of emergency medical services and the political and social impacts of EMS. This course includes a review of the American legal system and in-depth coverage of legal and political issues involving administrative and operational matters, and legislative and political processes with regard to EMS. If student is not an active paramedic or EMT, must establish a mentor who is a FD Officer and also a paramedic or EMT.

Student Learning Outcomes
Upon completion of this course, students will be able to:

1) Identify potential legal and political issues in EMS.
2) Describe legal lessons learned from recent cases, and identify best practices in the EMS to avoid legal liability.
3) Analyze and apply legal rules and political issues to manage risk in EMS services.
4) Formulate political and legal conclusions and recommendations based on the analysis.
5) Locate and apply recent legal and legislative online resources concerning EMS.
This capstone course will develop critical thinking, personal competency and relationship management skills to assist the student in achieving a leadership position in a public service environment. Through this educational experience the student will learn self-awareness, self-control, social awareness and relationship management skills necessary to manage and lead oneself and other individuals in an ever-changing modern and dynamic Fire/EMS industry.

**Student Learning Outcomes**

Upon completion of this course, students will be able to:

1. Identify and describe the difference between leadership and management.
2. Identify and describe the qualities of effective leadership in the context of self-awareness, self-management, social awareness and relationship management.
3. Identify the negative effects upon leadership competencies when leaders fail to leverage diversity.
4. Evaluate one’s self-awareness and leadership skills through the application of feedback provided through self-assessment and 360 degree feedback tools.
5. Describe the relationship between effective self-management and effective emergency scene leadership.