Revised: June 2012; Next Revision: 2013

Luna Community College
2012-2015

Fire Science Curriculum Profile

Program Goals

The Associate of Applied Science degree in Fire Science prepares students for service in fire protection. It is designed for individuals serving in the profession and as a preparatory program for individuals seeking a career in the fire service. Students enrolled in the program will receive a well-rounded general college education, with a strong foundation in fire science.

The program is dedicated to excellence by providing an academically-based curriculum of higher education. The intent of the program is to bridge the gap between training, certification, and experience with post-secondary education.

Graduates of the program will:

- Illustrate the history of the fire service; describe the components and development of the fire and emergency services; recognize careers in fire and emergency services.
- Identify various classifications of building construction; understand theoretical concepts of how fire impacts major types of building construction.
- Identify laws, codes, ordinances, and regulations as they relate to fire prevention; understand code enforcement as it impacts life and property loss.
- Identify the fundamental theories of fire behavior and combustion; differentiate the various types of extinguishment agents.
- Identify and describe various types and uses of fire protection systems; describe the basic elements of a public water supply system as it relates to fire protection.
- Identify and explain the 16 life safety initiatives; understand the concepts of risk management and mitigation as it pertains to emergency services.

Fire Science
Associate of Applied Science Degree
Minimum of 66 Credit Hours

The Associate of Applied Science degree in Fire Science prepares students for service in fire protection. It is designed for individuals serving in the profession and as a preparatory program for individuals seeking a career in the fire service. Students enrolled in the program will receive a well-rounded general college education, with a strong foundation in fire science. The degree is aligned with the Fire and Emergency Services Higher Education (FESHE) Model Curriculum.

Degree Requirements		**Credit Hours: 66**
General Education Core		**(36 hours)**
Area I. Communications		(9 hours)
ENG111	Freshman Composition I	3
ENG115	Freshman Composition II	3
SPCH111	Public Speaking -or-	3
SPCH112	Interpersonal Communications	3
Area II. Mathematics		(4 hours)
MATH180	College Algebra	4
Area III. Laboratory Science		(8 hours)
Area IV. Social and Behavioral Sciences		(9 hours)
Area V. Humanities and Fine Arts		(6 hours)
Program Requirements		**(21 hours)**
FS118	Principles of Emergency Services	3
FS133	Building Construction for Fire Protection	3
FS165	Fire Prevention	3
FS170	Fire Behavior and Combustion	3
FS214	Fire Protection Systems	3
FS232	Firefighter Safety and Survival	3
FS250	Research Methods in Fire Science	3
Approved Electives		**(9 hours)**
FS110	Hazardous Materials Responder	3
FS115	Introduction to Firefighting	4
FS120	Wildland Fire Control	3
FS125	Firefighter I	4
FS130	Fire and Life Safety Education	3
FS135	Fire Protection Hydraulics & Water Supply	3
FS160	Fire Investigation I	3

FS180	Incident Command	3
FS205	Firefighting Strategy and Tactics	3
FS210	Firefighter Leadership	3
FS217	Hazardous Materials Chemistry	3
FS220	Fire Service Instructor I	3
FS224	Principles of Code Enforcement	3
FS230	Fire & Emergency Services Administration	3
FS281	Firefighter Internship	3

Fire Science
Certificate
Minimum of 30 Credit Hours

The Certificate in Fire Science prepares students for service in fire protection. It is designed for individuals serving in the profession and as a preparatory program for individuals seeking a career in the fire service. The program is aligned with the Fire and Emergency Services Higher Education (FESHE) Model Curriculum.

Coursework in the Fire Science Certificate can be applied toward the Associate of Applied Science Degree in Fire Science. Students are strongly encouraged to consult with their LCC advisor for proper advisement and course selection.

Institutional Proficiency Requirements
In addition to the courses listed below for this program of study, students must also complete institutional proficiencies of ENG095, MATH075 and READ095 to meet all graduation requirements.

Certificate Requirements		**Credit Hours: 30**
Program Requirements		**(18 hours)**
FS118	Principles of Emergency Services	3
FS133	Building Construction for Fire Protection	3
FS165	Fire Prevention	3
FS170	Fire Behavior and Combustion	3
FS214	Fire Protection Systems	3
FS232	Firefighter Safety and Survival	3
Approved Electives		**(12 hours)**
FS110	Hazardous Materials Responder	3
FS115	Introduction to Firefighting	4
FS120	Wildland Fire Control	3
FS125	Firefighter I	4
FS130	Fire and Life Safety Education	3
FS135	Fire Protection Hydraulics & Water Supply	3
FS160	Fire Investigation I	3
FS180	Incident Command	3
FS205	Firefighting Strategy and Tactics	3
FS210	Firefighter Leadership	3
FS217	Hazardous Materials Chemistry	3
FS220	Fire Service Instructor I	3
FS224	Principles of Code Enforcement	3
FS230	Fire & Emergency Services Administration	3
FS281	Firefighter Internship	3

FS110: Hazardous Materials Responder (3 credits)
This course provides training for personnel expected to respond to and handle defensively, emergencies involving hazardous materials in order to protect people, property, and the environment. The focus is on the awareness and operations component of hazardous materials as outlined in NFPA 471, 472 and OSHA 29 CFR 1910.120.

Learning Outcomes:

- Describe hazardous materials laws, regulations, and standards
- Describe the recognition and identification of hazardous materials
- Identify hazardous materials informational resources
- Demonstrate personal protective equipment for hazardous materials
- Identify protective actions, common incidents and decontamination for hazardous materials
- Describe product control and air monitoring for hazardous materials
- Describe terrorism awareness for the first responder

Teaching Materials/References:

- Hazardous Materials Handbook, Awareness & Operations Levels, Delmar Publishing, ISBN-10: 1-4283-1971-9
- National Fire Academy online course, Introduction to Emergency Response to Terrorism (Q890)
- National Fire Academy online course, ICS-100 Introduction to ICS for Operational First Responders (Q462)

FS115: Introduction to Firefighting (4 credits)
This course is an introduction to firefighting skills. Topics include: safety, personal protective equipment, fundamentals of fire extinguishment, equipment operations/maintenance and other related fire fighter topics. This course addresses key components of NFPA 1001, Standard for Fire Fighter Professional Qualifications.

Learning Outcomes:

- Describe basic fire department organizational structures and operating procedures and distinguish among the duties and functions of fire department personnel
- Predict probable fire behavior and know the actions necessary to change or prevent these behaviors
- Don and doff protective clothing, SCBA and use of PASS device
- Identify and use portable fire extinguishers to extinguish small Class A, Class B and Class C fires
- Identify and properly knot, use, and maintain various types of ropes used in the fire service
- Identify and know appropriate applications and maintenance procedures for forcible entry tools

- Identify, carry, raise, climb, inspect, and maintain fire ground ladders
- Describe the fundamentals of a water supply system and be able to connect to a fire department pumper to various water sources
- Couple, load and roll hose; lay, carry, and advance hose
- Identify and operate a given selection of nozzles and types for water fire streams
- Identify and properly use various fire service communications systems and equipment

Teaching Materials/References:

- New Mexico State Fire Academy, Qualification System Task Book: Firefighter I
- IFSTA, Essentials of Fire Fighting, Textbook and Study Guide

FS118: Principles of Emergency Services (3 credits)
This course provides an overview to fire protection and emergency services; career opportunities in fire protection and related fields; culture and history of emergency services; fire loss analysis, organization and function of public and private fire protection services; fire department as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; introduction to fire strategy and tactics; life safety initiatives. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:

- Illustrate the history of the fire service.
- Describe the components and development of the fire and emergency services.
- Recognize careers in fire and emergency services.

Learning Outcomes:

- Illustrate and explain the history and culture of the fire service
- Analyze the basic components of fire as a chemical chain reaction, the major phases of fire, and examine the main factors that influence fire spread and fire behavior
- Differentiate between fire service training and education and explain the value of higher education to the professionalization of the fire service.
- List and describe the major organizations that provide emergency response service and illustrate how they interrelate.
- Identify fire protection and emergency-service careers in both the public and private sector.
- Define the role of national, State and local support organizations in fire and emergency services.
- Discuss and describe the scope, purpose, and organizational structure of fire and emergency services.
- Describe the common types of fire and emergency service facilities, equipment, and apparatus.

- Compare and contrast effective management concepts for various emergency situations.
- Identify the primary responsibilities of fire prevention personnel including, code enforcement, public information, and public and private protection systems.
- Recognize the components of career preparation and goal setting.
- Describe the importance of wellness and fitness as it relates to emergency services.

Teaching Materials/References:

- IFSTA Fire and Emergency Services Orientation and Terminology Manual, 5th Edition

FS120: Wildland Fire Control (3 credits)
This course focuses on factors affecting wildland fire control and prevention, fire behavior, control techniques, command structure, and other operations including Standards for Survival I-100, S-130 and S-190. The course meets or exceeds NWCG Training Curriculum and NFPA 1051 standard.

Learning Outcomes:

- The learning outcomes are based on NWCG I-100 curriculum, Incident Command System
- The learning outcomes are based on NWCG S-130 curriculum, Wildland Firefighter Skills
- The learning outcomes are based on NWCG S-190 curriculum, Wildland Fire Behavior

Teaching Materials/References:

- National Fire Academy Online Courses: S-130 (Wildland) Firefighter Training (Q901), S-190 Introduction to Wildland Fire Behavior (Q900), and ICS-100 Introduction to ICS for Operational First Responders (Q462)

FS125: Firefighter I (4 credits)
This course is designed to train the student to Level 1 as outlined in NFPA 1001, Professional Qualifications Standard. Several topics include equipment operations and maintenance, principles of firefighting, strategies and tactics, fire extinguishment methods, fire service operations, safety, personal protective equipment, hazardous materials, fire rescue operations, and other related topics. *Prerequisites: Instructor Approval.*

Learning Outcomes:

- Describe basic fire department organizational structures and operating procedures and distinguish among the duties and functions of fire department personnel
- Predict probable fire behavior and know the actions necessary to change or prevent these behaviors
- Identify structural characteristics of building construction types and recognize signs and causes of potential building collapse
- Don and doff protective clothing, SCBA and use of PASS device

- Identify and use portable fire extinguishers to extinguish small Class A, Class B and Class C fires
- Identify and properly knot, use, and maintain various types of ropes used in the fire service
- Conduct a search and rescue in a structure operating as a member of a team
- Identify and know appropriate applications and maintenance procedures for forcible entry tools
- Recognize various types of construction components and use appropriate forcible entry techniques
- Identify, carry, raise, climb, inspect, and maintain fire ground ladders
- Apply the principles of ventilation to appropriately ventilate a building
- Describe the fundamentals of a water supply system and be able to connect to a fire department pumper to various water sources
- Couple, load and roll hose; lay, carry, and advance hose
- Identify and operate a given selection of nozzles and types for water fire streams
- Operate as part of a team to control and/or extinguish interior and exterior Class A, C, and D fires and passenger vehicle and wildland fires
- Perform basic operations at properties protected by automatic sprinklers
- Safely and efficiently perform salvage and overhaul at a fire scene while protecting evidence for fire cause determination
- Identify and properly use various fire service communications systems and equipment
- Identify residential fire hazards, conduct a fire station tour and a residential fire safety survey and make and document a fire and life safety presentation

Teaching Materials/References:

- New Mexico State Fire Academy, Qualification System Task Book: Firefighter I
- IFSTA, Essentials of Fire Fighting, Textbook and Study Guide

FS130: Fire and Life Safety Education (3 credits)
This course provides information relating to the field of fire and life safety education. Several areas of NFPA 1035, Standards for Professional Qualifications for Public Fire and Life Safety Educator, are addressed. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Learning Outcomes:

- Differentiate between Public Education, Public Information and Public Relations/Marketing.
- Demonstrate the need for establishing fire and life safety education as a value within the fire service culture.
- Identify stakeholders; develop partnership and coalitions to work on fire and life safety education activities.
- Identify and use local, regional and national sources of data for fire and injury prevention programs.

- Identify budget needs for program delivery and the process for requesting funds.
- Select, design, implement, and evaluate fire and life safety education programs that address specific community risk issues.
- Develop an accountability system to measure program delivery.

Teaching Materials/References:

- IFSTA Fire and Life Safety Educator, 3rd Edition

FS133: Building Construction for Fire Protection (3 credits)
This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:

- Identify various classifications of building construction
- Understand theoretical concepts of how fire impacts major types of building construction.

Learning Outcomes:

- Describe building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, firefighting strategy, and tactics.
- Classify major types of building construction in accordance with a local/model building code.
- Analyze the hazards and tactical considerations associated with the various types of building construction.
- Explain the different loads and stresses that are placed on a building and their interrelationships.
- Identify the function of each principle structural component in typical building design.
- Differentiate between fire resistance, flame spread, and describe the testing procedures used to establish ratings for each.
- Classify occupancy designations of the building code.
- Identify the indicators of potential structural failure as they relate to firefighter safety.
- Identify the role of GIS as it relates to building construction.

Teaching Materials/References:

- Building Construction Related to the Fire Service Manual and Interactive (CD-ROM) Study Guide, Fire Protection Publications/IFSTA.

FS135: Fire Protection Hydraulics and Water Supply (3 credits)
This course provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and

to solve water supply problems. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:

- Apply water hydraulic principles.
- Demonstrate knowledge of water hydraulics as it relates to fire protection.

Learning Outcomes:

- Apply the application of mathematics and physics to the movement of water in fire suppression activities.
- Identify the design principles of fire service pumping apparatus.
- Analyze community fire flow demand criteria.
- Demonstrate, through problem solving, a thorough understanding of the principles of forces that affect water, both at rest and in motion.
- List and describe the various types of water distribution systems.
- Discuss the various types of fire pumps.

Teaching Materials/References:

- Fire Protection Publications, Fire Service Hydraulics and Water Supply, 2nd Edition

FS160: Fire Investigation I (3 credits)
This course is intended to provide the student with the fundamentals and technical knowledge needed for proper fire scene investigations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the fire setter, and types of fire causes. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:

- Demonstrate the importance of documentation, evidence collection, and scene security process needed for successful resolution.
- Understand and demonstrate the process of conducting fire origin and cause.
- Identify the processes of proper documentation.

Learning Outcomes:

- Identify the responsibilities of a firefighter when responding to the scene of a fire, including scene security and evidence preservation.
- Describe the implications of constitutional amendments as they apply to fire investigations.
- Indentify key case law decisions that have affected fire investigations.
- Define the common terms used in fire investigations.
- Explain the basic elements of fire dynamics and how they affect cause determination.

- Compare the types of building construction on fire progression.
- Describe how fire progression is affected by fire protection systems and building design.
- Discuss the basic principles of electricity as an ignition source.
- Recognize potential health and safety hazards.
- Describe the process of conducting investigations using the scientific method.
- Identify cause and origin and differentiate between accidental and incendiary.
- Explain the procedures used for investigating vehicle fires.
- Identify the characteristics of an incendiary fire and common motives of the fire setter.

Teaching Materials/References:

- IFSTA Fire Investigator, 2nd Edition
- Delmar Cengage Learning, Russ Chandler, Fire Investigation, 1st Edition
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FS165: Fire Prevention (3 credits)
This course provides fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education; and fire investigation. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:

- Identify laws, codes, ordinances, and regulations as they relate to fire prevention.
- Understand code enforcement as it impacts life and property loss.

Learning Outcomes:

- Define the national fire problem and role of fire prevention
- Identify and describe fire prevention organizations and associations
- Define laws, rules, regulations, and codes and identify those relevant to fire prevention of the authority having jurisdiction.
- Define the functions of a fire prevention bureau
- Describe inspection practices and procedures
- Identify and describe the standards for professional qualifications for Fire Marshal, Plans Examiner, Fire Inspector, Fire and Life Safety Educator, an Fire Investigator
- List opportunities in professional development for fire prevention personnel
- Describe the history and philosophy of fire prevention

Teaching Materials/References:

- Delmar Cengage Learning, Fire Prevention: Inspection and Code Enforcement, 3rd Edition

FS170: Fire Behavior and Combustion (3 credits)
This course explores the theories and fundamentals of how and why fires start, spread, and are controlled. Topics include physical properties of the three states of matter, components of fire, physical and chemical properties, the burning process, chemistry and dynamics of fire, fuels, fire suppression agents, and fire extinguishments. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:

- Identify the fundamental theories of fire behavior and combustion
- Differentiate the various types of extinguishing agents

Learning Outcomes:

- Identify physical properties of the three states of matter
- Categorize the components of fire
- Explain the physical and chemical properties of fire
- Describe and apply the process of burning
- Define and use basic terms and concepts associated with the chemistry and dynamics of fire
- Discuss various materials and their relationship to fires as fuel
- Demonstrate knowledge of the characteristics of water as a fire suppression agent
- Articulate other suppression agents and strategies
- Compare other methods and techniques of fire extinguishments

Teaching Materials/References:

- Delmar Cengage Learning, Fire Behavior and Combustion Processes

FS180: Incident Command (3 credits)
This course is an overview of incident command. The emphasis is on the National Incident Management System – Incident Command System (NIMS-ICS). Several topics include the ICS planning process, ICS positions and unified command.

Learning Outcomes:

- The learning outcomes are based on the National Fire Academy, ICS-100, Introduction to ICS for Operational First Responders
- The learning outcomes are based on the National Fire Academy, ICS-200, Basic NIMS-ICS for Operational First Responders
- The learning outcomes are based on the National Fire Academy, ICS-300, Intermediate All-Hazard NIMS-ICS Review for Expanding Incidents
- The learning outcomes are based on the National Fire Academy, ICS-400, Fundamentals Review for Command and General Staff

Teaching Materials/References:

- Jones and Bartlett Learning, National Incident Management System: Principles and Practice, ISBN-10: 0763781878
- National Fire Academy Online Courses: ICS-100 (Q462), ICS-200(Q463), ICS-300 (Q464), and ICS-400(Q466)

FS205: Firefighting Strategy and Tactics (3 credits)
This course provides the principles of fire ground control through utilization of personnel, equipment, and extinguishment agents. Topics include: fire behavior, pre-fire planning, building construction, size-up, fire ground communications, command and ICS/NIMS. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
- Create a strategy and implement appropriate tactics.
- Possess a working knowledge and execution of ICS/NIMS at the incident.

Learning Outcomes:
- Discuss fire behavior as it relates to strategies and tactics.
- Explain the main components of pre-fire planning and identify steps needed for a pre-fire plan review.
- Identify the basics of building construction and how they interrelate to pre-fire planning and strategy and tactics.
- Describe the steps taken during size-up
- Examine the significance of fire ground communications.
- Identify the roles of the National Incident Management Systems (NIMS) and Incident Management Systems (ICS) as it relates to strategy and tactics.
- Demonstrate the various roles and responsibilities in ICS/NIMS.

Teaching Materials/References:
- Delmar Cengage Learning, Firefighting Strategies and Tactics, 2nd Edition

FS210: Firefighter Leadership (3 credits)
This course is an analysis of leadership theories and practices for the fire service. Topics include: effective leadership, leading teams and organizations, and executive leadership strategies.

Learning Outcomes:
- Define leadership and describe leadership models/theories as applied in the fire and emergency services
- Distinguish between leadership, supervision and management
- Describe effective leadership strategies
- Identify strategies for leading teams in a fire service organization
- Describe strategies of executive leadership

Teaching Materials/References:

- John Salka, First In, Last Out, Leadership Lessons from the New York Fire Department
- Peter G. Northouse, Leadership Theory and Practice, Fifth Edition
- IFSTA, Fire and Emergency Services Company Officer
- Andy Andrews, The Seven Decisions, DVD
- Jules Naudet, etal, 9/11 The Filmmakers' Commemorative Edition (2022), DVD

FS214: Fire Protection Systems (3 credits)
This course provides information relating to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:
The student will:
- Identify and describe various types and uses of fire protection systems
- Describe the basic elements of a public water supply system as it relates to fire protection.

Learning Outcomes:
- Explain the benefits of fire protection systems in various types of structures.
- Describe the basic elements of a public water supply system including sources, distribution networks, piping and hydrants.
- Explain why water is a commonly used extinguishing agent.
- Identify the different types and components of sprinkler, standpipe, and foam systems.
- Review residential and commercial sprinkler legislation.
- Identify the different types of non-water based fire suppression systems.
- Explain the basic components of a fire alarm system.
- Identify the different types of detectors and explain how they detect fire.
- Describe the hazards of smoke and list the four factors that can influence smoke movement in a building.
- Discuss the appropriate application of fire protection systems.
- Explain the operation and appropriate application for the different types of portable fire protection systems.

Teaching Materials/References:
- IFSTA Fire Detection and Suppression Systems, 4th Edition

FS217: Hazardous Materials Chemistry (3 credits)
This course provides basic chemistry relating to the categories of hazardous materials including recognition, identification, reactivity, and health hazards encountered by emergency services. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:

The student will:

- Demonstrate a basic understanding of hazardous materials chemistry
- Demonstrate proficiency in the use of DOT guidebook.

Learning Outcomes:

- Identify and describe the common elements of the Periodic Table
- Distinguish between elements, compounds, and mixtures
- Explain the difference between ionic and covalent bonding
- Define the basic chemistry involved with common hydrocarbon derivatives.
- Describe the basic chemical and physical properties of gases, liquids, and solids.
- Discuss the nine U.S. Department of Transportation hazard classes and their respective divisions.
- Demonstrate the utilization of guidebooks, MSDS, and other reference materials to determine an initial course of action.

Teaching Materials/References:

- Eugene Meyer, Pearson Education, Chemistry of Hazardous Materials

FS220: Fire Service Instructor I (3 credits)

This course focuses on the profession of teaching and instruction. Several topics include: general instructional knowledge, preparation for instruction, instructional delivery, lesson plans, instructional aids, demonstrations, training evolutions, evaluation, and testing. This course addresses the job performance requirements of an Instructor I as outlined in NFPA 1041, Standard for Fire Instructor Professional Qualifications.

Learning Outcomes:

- Describe challenges of fire and emergency service instructors
- Identify effective instructor characteristics
- Define the safety challenge
- Describe the three basic components of ethics
- Define interpersonal communications and its characteristics
- Describe the importance of report writing and record keeping
- Describe student characteristics
- Describe cognitive (knowledge), psychomotor (skills), and affective (attitude) domains of learning
- Describe the four-step method of instruction (preparation, presentation, application, and evaluation

Teaching Materials/References:

- IFSTA, Fire and Emergency Services Instructor
- IFSTA, Interactive Study Guide, Fire and Emergency Services Instructor

FS224: Principles of Code Enforcement (3 credits)
This course will provide the students with the fundamental knowledge of the role of code enforcement in a comprehensive fire prevention program. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Learning Outcomes:

- Explain the code enforcement system and the fire inspector's role in that system.
- Describe the codes and standards development and adoption processes.
- Describe the difference between prescriptive and performance based codes.
- Describe the legal authority and limitations relevant to fire code inspections.
- Describe the importance of thorough documentation.
- Recognize ethical practices for the code enforcement officer.
- Explain the application, and interrelationship of codes, standards, recommended practices and guides.
- Describe the differences in how codes apply to new and existing structure.
- Indentify appropriate codes and their relationship to other requirements for the built environment.
- Describe the political, business, and other interest that influence the code enforcement process.
- Identify the professional development process for code enforcement practitioners.

Teaching Materials/References:

- NFPA101: Life Safety Code
- IFSTA Fire Inspector and Code Enforcement Manual and Interactive Study Guide (CD-ROM), 7th edition

FS230: Fire and Emergency Services Administration (3 credits)
This course introduces the student to the organization and management of a fire and emergency services department and the relationship of government agencies to the fire service. Emphasis is placed on fire and emergency service, ethics, and leadership from the perspective of the company officer. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:

- Describe the basic theories of public sector management.
- Recognize the importance of ethics and communication skills.
- Articulate and demonstrate the importance of the public policy process, responsibility, and authority.

Learning Outcomes:

- Acknowledge career development opportunities and strategies for success.
- Recognize the need for effective communication skills both written and verbal.

- Identify and explain the concepts of span and control, effective delegation, and division of labor.
- Select and implement the appropriate disciplinary action based upon an employee's conduct.
- Explain the history of management and supervision methods and procedures.
- Discuss the various levels of leadership, roles, and responsibilities within the organization.
- Describe the traits of effective versus ineffective management styles.
- Identify the importance of ethics as it relates to fire and emergency services.
- Identify the roles of the National Incident Management System (NIMS) and Incident Management System (ICS).

Teaching Materials/References:

- IFSTA Fire and Emergency Services Company Officer Textbook and Interactive Study Guide
- National Fire Academy Online Course: Fire Service Supervision (Q318)

FS232: Firefighter Safety and Survival (3 credits)
This course introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavior change throughout the emergency services. This course is aligned with Fire and Emergency Services Higher Education (FESHE) Curriculum.

Course Objectives:

- Identify and explain the 16 life safety initiatives.
- Understand the concepts of risk management and mitigation as it pertains to emergency services.

Learning Outcomes:

- Define and describe the need for cultural and behavioral change within the emergency services relating to safety, incorporating leadership, supervision, accountability and personal responsibility.
- Explain the need for enhancements of personal and organizational accountability for health and safety.
- Define how the concepts of risk management affect strategic and tactical decision-making.
- Describe and evaluate circumstances that might constitute an unsafe act.
- Explain the concept of empowering all emergency services personnel to stop unsafe acts.
- Validate the need for national training standards as they correlate to professional development inclusive of qualifications, certifications, and re-certifications.
- Defend the need for annual medical evaluations and the establishment of physical fitness criteria for emergency services personnel throughout their careers.

- Explain the vital role of local departments in national research and data collection systems.
- Illustrate how technological advancements can produce higher levels of emergency services safety and survival.
- Explain the importance of investigating all near-misses, injuries and fatalities.
- Discuss how incorporating the lessons learned from investigations can support cultural change throughout the emergency services.
- Describe how obtaining grants can support safety and survival initiatives.
- Formulate an awareness of how adopting standardized policies for responding to emergency scenes can minimize near-misses, injuries and deaths.
- Explain how the increase in violent incidents impacts safety for emergency services personnel when responding to emergency scenes.
- Recognize the need for counseling and psychological support for emergency services personnel, their families, as well as, identify access to local resources and services.

Teaching Materials/References:

- Don Zimmerman, Delmar Cengage Learning, Firefighter Safety and Survival

FS250: Research Methods in Fire Science (3 credits)
The Research Methods course in Fire Science gives the student the opportunity to demonstrate the achievement of the learning outcomes. The student will be assigned a research project based on course objectives and outcomes established in the Fire Science Core Curriculum. The student will demonstrate the application of learning through a variety of evaluations, such as oral or written examination. *Co-requisite: ENG115*

Learning Objectives/Outcomes:

- Illustrate the history of the fire service
- Describe the components and development of the fire and emergency services
- Recognize careers in fire and emergency services.
- Identify various classifications of building construction
- Understand theoretical concepts of how fire impacts major types of building construction.
- Identify laws, codes, ordinances, and regulations as they relate to fire prevention.
- Understand code enforcement as it impacts life and property loss.
- Identify the fundamental theories of fire behavior and combustion
- Differentiate the various types of extinguishing agents
- Identify and describe various types and uses of fire protection systems
- Describe the basic elements of a public water supply system as it relates to fire protection.
- Identify and explain the 16 life safety initiatives
- Understand the concepts of risk management and mitigation as it pertains to emergency services.

Teaching Materials/References:

- Publication Manual of the American Psychological Association, Sixth Edition

FS281: Firefighter Internship (3 credits)
This course is an application of knowledge, skills and abilities in a fire service department, as a firefighter intern and integrated member of a fire affiliated agency. *Prerequisite: Instructor Approval.*

Learning Outcomes:

- The fire science advisor, the student and work supervisor will develop, at a minimum, ten learning outcomes to be met during the work experience

Teaching Materials/References:

- Guidelines to Writing Internship Learning Objectives, cims.clayton.edu/…/InternshipInfo/…

Assessment

Luna Community College defines assessment as a process that will lead to the improvement of student learning. The process must follow four steps as illustrated below.

LCC Assessment Plan

All course offerings, including degree and certificate programs, at Luna Community College are required to follow the four-step assessment process. They include:

1. A list of expected learning outcomes
2. Assessment tools that directly measure those learning outcomes
3. The results of the data, and
4. How the data will be used to improve student learning

Academic Departments as Luna Community College are required to participate in semester "Improving Student Learning" assessment reporting and Student Learning Outcomes Assessment (SLOA) Committee presentations. Every semester, academic departments focus on specific learning outcomes with a targeted student population. Faculty are selected to participate in SLOA; selected faculty participate in developing assessment methods and procedures for their particular course or courses. The faculty give oral presentations at the end of the semester and information gathered is disseminated among SLOA members, faculty and staff. The purpose is to provide a baseline for future improvements.

Visit our web site at www.luna.edu to review LCC's Improving Student Learning (ISL) reports. LCC also abides by the New Mexico state competencies for general education.

LUNA COMMUNITY COLLEGE
Standard "Minimal" Requirements for Course Syllabus

Course	course title and other course information including meeting times, dates, room number, credits, semester, prerequisites and/or co-requisites
Faculty	information about the instructor and his or her contact information (e.g., phone number and email). List time and day of office hours for full time faculty
Course Description	use catalog description
Expectations of Students	What do you expect from your students? For example, description of students' responsibilities in the learning process; how you hope the students will approach the course subject/content; take responsibility for their learning; the amount of study time expected in the course, and suggestions on how to succeed in the course.
Course Learning Outcomes (Competencies)	this section will include a list of skills or techniques students will develop from the course. This list will consists of a minimum of four to six quantifiable statements about what students will be able to do after completing the course.
New Mexico CORE Competencies	If teaching a CORE course, the State HED competencies must be stated (e.g., Communications, Mathematics, Laboratory Science, Social & Behavioral Sciences, Humanities & Fine Arts).
Methods of Measuring Learning Outcomes (Competencies)	What tools are used to measure student success based on the learning outcomes?

Evaluation	Indicate how the student will earn a particular grade, such as information about assignments including types of assignments, nature of exams (e.g., take home, open book, in-class) due dates, grading criteria and so forth.
Course Schedule	Add a tentative schedule indicating the course content that will be covered throughout the course (e.g., eight week or sixteen week schedule).
Policies	Include policies such as attendance, academic responsibilities, late assignments, missed exams, cell phones, etc. Add a statement that indicates: for additional student information, refer to the 2009-2011 Student Handbook
Grading Standard	Refer to page 39 of the LCC 2009-2012 Catalog
Textbook(s)	Name of required textbooks(s) and any recommended materials. Include ISBN number(s)
Important Dates	List important dates such as last day to withdraw from the course, holidays, add/drop, midterm, final exam week, spring break and other important dates.
ADA Statement	Add a statement regarding accommodations for students with disabilities
Syllabus Revisions or Changes	Add a statement that indicates the syllabus is subject to change
Internet Courses (non-proctored)	Use the following statement: LCC will ensure firm student identification for examinations through the use of username and password for non proctored exams. As an on-line student, you are responsible for

keeping your username and password secure. Your username and password should not be given out as you are responsible for all assessment, assignments, and on-line communications. Any academic dishonesty/plagiarism will not be tolerated and is grounds for disciplinary actions. [Please refer to page 6 of the LCC 2009-2012 Catalog]