

# FIR - FIRE SCIENCE

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**FIR 100** **1 credit hours (lecture: 1 | lab: 0)**  
**Preparation For Fire Service & Law Enforcement Entrance Examination**

Course instructs firefighter and police officer candidates about all aspects of hiring process. Content includes how to locate job opportunities; properly complete job applications; take written physical, psychological, and medical examinations; and prepare for oral interview by Police and Fire Commissioners. Credit cannot be received in both FIR 100 and LAE 100.

*Delivery mode: Face-to-Face*

**FIR 101** **3 credit hours (lecture: 3 | lab: 0)**  
**Introduction To Fire Science**

Course introduces aspects of fire science. Content includes history of fire protection; fire protection organization; magnitude and causes of fire losses; properties of hostile fires; and principles of fire preventing, detecting, confining and extinguishing fires.

*Delivery mode: Face-to-Face | Online*

**FIR 102** **6 credit hours (lecture: 3 | lab: 6)**  
**Firefighter II / Basic Firefighter Part I**

Course instructs students in the theory, basic individual skills, and team skills required for using and operating fire suppression and ancillary equipment and as well as other basic fire knowledge and skills required by the Office of the State Fire Marshal (OSFM) and recommendations by the National Fire Protection Association, NFPA 1001: Firefighter Professional Qualifications. Content includes: fire organization, fire behavior, safety, self contained breathing apparatus, portable fire extinguishers, ladders, fire hose and appliances, building construction, forcible entry, ventilation, water supply, nozzles and fire streams, rescue, fire control, ropes and knots, loss control, fire detection-alarm & fire suppression systems, fire prevention & public education, protecting evidence for cause and determination, communications, terrorism, and firefighter survival. Fee: TBA.

**Prerequisite:** Concurrent enrollment in FIR 103.

**Recommended:** FIR 101.

*Delivery mode: Face-to-Face*

**FIR 103** **6 credit hours (lecture: 3 | lab: 6)**  
**Firefighter II / Basic Firefighter, Part II**

Course continues to instruct students in the theory, basic individual skills, and team skills required for using and operating fire suppression and ancillary equipment and as well as other basic fire knowledge and skills required by the Office of the State Fire Marshal (OSFM) and recommendations by the National Fire Protection Association, NFPA 1001: Firefighter Professional Qualifications. Content includes: fire organization, fire behavior, safety, self contained breathing apparatus, portable fire extinguishers, ladders, fire hose and appliances, building construction, forcible entry, ventilation, water supply, nozzles and fire streams, rescue, fire control, ropes and knots, loss control, fire detection-alarm & fire suppression systems, fire prevention and public education, protecting evidence for cause and determination, communications, terrorism, and firefighter survival. Fee: TBA.

**Prerequisite:** Concurrent enrollment in FIR 102.

**Recommended:** FIR 101.

*Delivery mode: Face-to-Face*

**FIR 106** **3 credit hours (lecture: 2 | lab: 2)**  
**Firefighter III Advanced Technician Firefighter**

A course to instruct the Basic Operations Firefighter students in advanced firefighting techniques. The Advanced Technician Firefighter is able to perform firefighting operations without direct supervision. Emphasis will be placed on advanced firefighting suppression operations, individual and team skills as required by the Office of the State Fire Marshal (OSFM) and recommendations by the National Fire Protection Association, NFPA 1001: Firefighter Professional Qualifications. Successful completion of this course along with passage of the State Written Exam and other required OSFM Certification Courses will lead to OSFM Certification as an Advanced Technician Firefighter. Fee: TBA.

**Prerequisite:** FIR 102 and FIR 103.

*Delivery mode: Face-to-Face*

**FIR 108** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Behavior and Combustion**

Course introduces the theories and principles of how and why fires start, the dynamics of fire, how fire spreads, and how fires are properly controlled using various methods of fire extinguishment.

**Recommended:** FIR 101

*Delivery mode: Face-to-Face*

**FIR 121** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Fighting Tactics I**

Course examines fire fighting tactics and strategies. Content includes pre-fire activities; fire ground operations, including search and rescue, forcible entry, ventilation, suppression, salvage and overhaul; post-fire activities, and the incident command system.

**Recommended:** FIR 101.

*Delivery mode: Face-to-Face*

**FIR 122** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Fighting Tactics II**

Course continues FIR 121. Content includes application of principles of fire fighting tactics to specific fire situations; and documentation and evaluation of actual fire incidents.

**Prerequisite:** FIR 121.

*Delivery mode: Face-to-Face | Online*

**FIR 130** **3 credit hours (lecture: 3 | lab: 0)**  
**Chemistry of Hazardous Materials**

Course offers a review of elementary chemistry. Content includes properties of flammable liquids and gases, oxidizers, water reactive chemicals, corrosive chemicals, toxic materials and radioactive materials; storage, handling and fire suppression techniques of potentially hazardous materials.

**Recommended:** FIR 101.

*Delivery mode: Face-to-Face*

**FIR 131** **3 credit hours (lecture: 3 | lab: 0)**  
**Hazardous Materials - First Responder**

Course offers an operational level and understanding of hazardous materials. Content includes identification and classification of hazardous materials; physical and chemical properties of hazardous materials; planning, response and mitigation of hazardous materials incidents; analysis of case histories and application of learned principles to simulated exercises.

*Delivery mode: Face-to-Face | Online*

- FIR 191** **4 credit hours (lecture: 3 | lab: 2)**  
**Emergency Response Pre-Plan Design**  
 A course for emergency responders using computer-based software. Course introduces emergency response applications with emphasis on emergency pre-planning. It focuses on designing plans for use by emergency responders using Firehouse, AutoCAD, and other applicable software. The computer will be used by students to document information about the condition of assets, including buildings and personnel for transmission to emergency operations managers and personnel who need it for planning response, crisis management, and recovery efforts. Credit cannot be received in both FIR 191 and CAD 191.  
*Delivery mode: Face-to-Face | Online* Fee: \$50
- FIR 192** **4 credit hours (lecture: 3 | lab: 2)**  
**Emergency Response Tactical Operations**  
 A course in tactical planning for emergency responders using pre-plan scenarios to coordinate tactical operations. Emphasis is on crisis management by fire, police and support personnel in implementing tactical operations for any and all emergencies. Hazards include fire, hostile intruder, severe weather, utility outages, natural disasters, and facility security. Technologies are used in a lab environment to gain information about the condition of personnel and to assess risk. Technologies include surveillance, pre-plans, and converged communications to provide information to emergency operations managers for developing the appropriate tactical response and recovery efforts. Credit cannot be received in both FIR 192 and LAE 192.  
**Recommended:** CAD 191 or FIR 191.  
*Delivery mode: Face-to-Face* Fee: \$50
- FIR 201** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Prevention Principles I**  
 Course presents responsibilities, objectives and organization of a fire prevention bureau. Content includes setting up and implementing a systematic inspection program; classification of occupancy by hazard; function of water supplies and automatic sprinkler systems; and other codes related to fire safety and application of codes to fire prevention activities.  
**Recommended:** FIR 101.  
*Delivery mode: Face-to-Face | Online*
- FIR 205** **3 credit hours (lecture: 3 | lab: 0)**  
**Building Construction**  
 Course studies structural and interior construction and building equipment as related to fire safety considerations. Content includes analysis of vertical and horizontal openings and exterior features in communication of fires; effects of fire exposure on structural integrity of buildings.  
*Delivery mode: Face-to-Face | Online*
- FIR 209** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Hydraulics**  
 Course reviews basic mathematics and studies of hydraulic principles and formulas for fluid flow, friction loss and forces. Content includes operation and characteristics of fire pumps, water distribution and supply for fire protection, fluid flow in hoses, nozzle discharge and fire streams, and application of principles to fire department operations.  
**Recommended:** FIR 101.  
*Delivery mode: Face-to-Face | Online*
- FIR 211** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Prevention Principles II**  
 Course continues FIR 201 Content includes responsibilities and management of fire prevention programs, implementation of public education programs; function of fire alarm and special extinguishing systems; and relationship of building, life safety and codes to fire hazards and causes.  
**Recommended:** FIR 101 and FIR 201.  
*Delivery mode: Face-to-Face*
- FIR 215** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Investigation**  
 Course offers an analysis of causes of fires and relationship of fire characteristics and traces to se causes. Content includes recognition of equipment failures responsible for fires; incendiary fires; collection, preservation and documentation of evidence substantiating fire causes; interrogation techniques in fire investigations and cooperation of fire investigating agencies.  
**Recommended:** FIR 101.  
*Delivery mode: Face-to-Face | Online*
- FIR 217** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Department Administration I**  
 Course presents types, organizational structure, and activities of fire departments. Content includes recruitment through training; personnel assignments, promotion, working conditions, pay and hours, retirement; fire station facilities, communication centers, training facilities; preparation of specifications, advertising and acceptance of bids for procuring apparatus and equipment; testing and maintenance of apparatus and equipment and types of systems and utilization of available water supply.  
**Recommended:** FIR 101.  
*Delivery mode: Face-to-Face | Online*
- FIR 218** **3 credit hours (lecture: 3 | lab: 0)**  
**Fire Department Administration II**  
 Course examines fire department operations. Content includes procedures of municipal fire alarm systems; radio facilities, dispatching to emergency alarms; basic operational procedures for various types of fire and emergency situations; fire loss data, manpower productivity and utilization; grading of fire defenses; community public relations; public education in fire and life safety and organizing for fire prevention inspections, code enforcement and special fire prevention campaigns.  
**Recommended:** FIR 101.  
*Delivery mode: Face-to-Face*
- FIR 219** **3 credit hours (lecture: 3 | lab: 0)**  
**Industrial Fire Protection**  
 Course studies industrial fire prevention practices. Content includes study of fixed-fire protection systems; employee fire safety education; in-plant inspections; hazard controls, organization of industrial fire brigades, and cooperation with public fire departments.  
**Recommended:** FIR 101.  
*Delivery mode: Face-to-Face | Online*

**FIR 220** **8 credit hours (lecture: 5 | lab: 6)****Emergency Medical Technician**

Course studies duties performed by emergency medical technicians, following the National EMS Education Standards. Contents include CPR, human body anatomy, vital signs, ventilation, cardiac emergencies, resuscitation, automated external defibrillation, pharmacology, bleeding and shock, fractures, injuries, childbirth, lifting and moving of patients, legal and ethical issues. Practical skill performance is heavily emphasized throughout the course. This course is approved by Illinois Department of Public Health (IDPH) and successful completion of course qualifies students to take IDPH's EMT licensing examination or the National Registry Examination for EMT.

**Prerequisite:** 18 years of age or older, high school diploma or High School Equivalency Certificate.

*Delivery mode:* Face-to-Face | Hybrid

Fee: \$200

**FIR 221** **6 credit hours (lecture: 4 | lab: 8)****Emergency Medical Technician-Paramedic I**

Course is the first of four laboratory and clinical instruction courses for the Paramedic Program. All four courses, which include hospital and field internship experiences, must be passed, in the following sequence: FIR 221, FIR 222, FIR 223, FIR 224. The course content will address the Fundamentals of Paramedicine and prepare students to care for the sick and injured at an advanced level of care. It is designed to expand upon entry-level knowledge and skills acquired as an Emergency Medical Technician (EMT). This course will provide the student with a broad knowledge base upon which to make reasoned decisions when giving emergency care.

**Prerequisite:** FIR 220 or equivalent and consent of instructor. Concurrent enrollment in FIR 222.

*Delivery mode:* Face-to-Face

**FIR 222** **6 credit hours (lecture: 4 | lab: 8)****Emergency Medical Technician-Paramedic II**

Course is the second of four laboratory and clinical instruction courses for the Paramedic Program. All four courses, which include hospital and field internship experiences, must be passed, in the following sequence: FIR 221, FIR 222, FIR 223, FIR 224. This course builds on the emergency concepts learned in FIR 221. It provides students with the knowledge and skills needed to be effective in the pre-hospital environment. It is designed to prepare the student to work as a paramedic in a range of settings such as with individuals, groups, and communities in and out of the hospital setting. It educates the students on how to achieve positive outcomes for patients. Students will gain clinical decision-making, problem-solving and critical thinking skills through simulated learning activities and clinical placements.

**Prerequisite:** FIR 221 or concurrent enrollment in FIR 221.

*Delivery mode:* Face-to-Face

**FIR 223** **6 credit hours (lecture: 4 | lab: 8)****Emergency Medical Technician-Paramedic III**

This course is the third of four laboratory and clinical instruction course for the Paramedic Program. All four courses, which include hospital and field internship experiences, must be passed, in the following sequence: FIR 221, FIR 222, FIR 223, FIR 224. This course is designed to prepare competent entry-level paramedics in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. The course will give students continued training to be successful when challenging the National Paramedic Certification exam. The course presents material on advanced concepts in emergency medicine needed for delivery of emergency care at the paramedic level of practice. Students will integrate prior didactic and skills coursework in preparation for field internship practicums, job seeking, and career planning.

**Prerequisite:** FIR 222.

*Delivery mode:* Face-to-Face | Online

**FIR 224** **6 credit hours (lecture: 4 | lab: 8)****Emergency Medical Technician-Paramedic IV**

Course is the fourth of four laboratory and clinical instruction courses for the Paramedic Program. This final course in the sequence also includes ambulance experience. Students are required to use higher order thinking and critical reasoning skills to safely care for patients in and out of the hospital environment under the direct supervision of an approved paramedic system preceptor. Students are required to complete a state-specified number of field internship hours, including a minimum number of patient care contacts and demonstration of competencies. During these field internship hours, students are required to successfully demonstrate ascending mastery of skills and accountability. Upon successful completion of the courses, students will be eligible to take the National Registry of Paramedic exam and obtain Paramedic licensure by IDPH.

**Prerequisite:** FIR 223.

*Delivery mode:* Face-to-Face

**FIR 227** **3 credit hours (lecture: 3 | lab: 0)****Fire Department Administration III**

Course is first of two management courses required of eligible candidates pursuing Illinois Office of the State Fire Marshal certification as Fire Officer II. Content includes management principles and techniques used by mid-level managers and chief officers in fire service; principles of time management, decision-making, motivation and delegation.

**Prerequisite:** FIR 217 and FIR 218 or consent of instructor.

*Delivery mode:* Face-to-Face

**FIR 228** **3 credit hours (lecture: 3 | lab: 0)****Fire Department Administration IV**

Course is second of two management courses required of eligible candidates pursuing Illinois Office of the State Fire Marshal certification as Fire Officer II. Content includes management principles and techniques used by mid-level managers and chief officers in fire service. Principles of public relations, labor relations, administrative liability and personnel management are emphasized.

**Prerequisite:** FIR 217 and FIR 218 or consent of instructor.

*Delivery mode:* Face-to-Face

**FIR 230** **3 credit hours (lecture: 2 | lab: 2)****Fire Apparatus Engineer**

Course examines fire apparatus drivers and operators. Content includes pumps and controls, relay pumping operations, water supplies to elevated streams, standpipe sprinklers and miscellaneous equipment, preventive maintenance, records and reports.

**Recommended:** FIR 121.

*Delivery mode:* Face-to-Face

**FIR 235** **3 credit hours (lecture: 3 | lab: 0)**

**Fire Service Instructor I**

Course examines job of fire service instructor. Content includes basic principles of adult learning, classroom management, steps in teaching, teaching methods, planning instruction, training aids and devices, implementation of training programs, use of records, types of evaluation, preparation of tests, performance testing and practice teaching.

**Recommended:** FIR 101.

*Delivery mode: Face-to-Face*

**FIR 236** **3 credit hours (lecture: 3 | lab: 0)**

**Fire Service Instructor II**

Course continues FIR 235. Content includes more advanced teaching techniques, including illustrative and demonstrative lectures, testing and performance assessment, qualifications and duties of a training officer; defining objectives of training program; planning, acquiring and using training facilities; developing curriculum; administering a training program and planning and conducting conferences.

**Prerequisite:** FIR 235.

*Delivery mode: Face-to-Face*

**FIR 245** **3 credit hours (lecture: 3 | lab: 0)**

**Law For The Fire Service**

Course introduces legal aspects of fire science. Contents include study of judicial system; civil and criminal actions; legal status of fire department; jurisdiction and liability of fire prevention bureaus; municipal responsibility to and for fire fighters; authority and liability of fire fighters; law and arson investigation; techniques for testifying in court; and compensation, pension and termination of employment of fire fighters.

**Recommended:** FIR 101.

*Delivery mode: Face-to-Face | Online*

**FIR 285** **4 credit hours (lecture: 3 | lab: 2)**

**Blue Card – Incident Command**

Course is designed to equip and then certify the students with the knowledge and skills necessary to serve in the role of Incident Commander or to supervise and manage emergency and hazard zone operations for National Incident Management System Type 4 and Type 5 events. The Blue Card certification is a blended course experience which incorporates 50 hours of online instruction with 24 hours of in-class computer simulation training.

**Prerequisite:** Consent of instructor and completion of FEMA

Certifications: ICS-100.b, IS-200.b, ICS-700.a, and IS-800.b. Also, students must successfully complete 50-hour online course component prior to beginning in-class simulation.

*Delivery mode: Face-to-Face | Hybrid*

Fee: \$385

**FIR 290** **1-6 credit hours (lecture: 0-6 | lab: 0-1)**

**Topics in Fire Science Technology**

Course covers a variety of different topics during different semesters. Topics will be selected from among current advances in fire science technology. Typical course concentrations might be Fire Officer Training III or Hazardous Materials and Terrorist Incident Response. Check with the instructor and the latest college class listings for details. The course may be repeated twice. Fee Varies. Prerequisite may vary by topic.

*Delivery mode: Face-to-Face*