FIRE SCIENCE (FIRE)

Community and Technical College
Fire Science (https://www.ctc.uaf.edu/programs/fire-science/)
907-455-2800

FIRE F101 Principles of Emergency Services
3 Credits
Offered Spring
Overview of fire protection, career opportunities, philosophy and history of fire protection/service. Fire departments as part of local government, laws/regulations affecting fire services, fire service nomenclature, fire protection functions. Fire chemistry and physics, fire protection systems, fire strategy and tactics.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F105 Fire Prevention
3 Credits
Offered Spring
The history and philosophy of fire prevention, organization and operation of a fire prevention bureau. Use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protection systems, fire investigation, and fire and life-safety education.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F107 Strategy and Tactics
3 Credits
Offered Spring
The principles of fire control through utilization of personnel, equipment and extinguishing agents on the fire ground.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F110 Introduction to Hazardous Waste Operations and Emergency Response
3 Credits
Offered As Demand Warrants
Review of federal and state hazardous materials laws and regulations. Career opportunities related to the field of hazardous materials including transportation, emergency response, site clean up and Incident Command System (ICS).
Lecture + Lab + Other: 3 + 0 + 0

FIRE F115 Fire Apparatus and Equipment
3 Credits
Offered As Demand Warrants
Fire apparatus design, specifications and performance capabilities, effective use of apparatus in fire emergencies.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F117 Rescue Practices
3 Credits
Offered Fall
Rescue situations and techniques including vehicle extrication, rescue carries, ventilation principles, structural rescue, use of portable hand and power tools, wildland/canine search and rescue, ice and water rescue and emergency life saving principles. All students are required to wear a complete set of fire department-approved protective clothing (turnout gear). Limited quantities are available for loan through the emergency services program coordinator. An eight-hour personal protective equipment and self-contained breathing apparatus orientation must be completed in order to participate in live fire exercises.
Prerequisites: EMS F170.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F121 Fire Behavior and Combustion
3 Credits
Offered Fall and Spring
Theories and fundamentals of how and why fires start, spread, and how they are controlled.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F123 Fire Investigations I
3 Credits
Offered As Demand Warrants
Fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter and types of fire causes.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F127 Vessel Safety: Emergency Equipment, Procedures and Drills
1 Credit
Offered As Demand Warrants
Introduction to safe boating practices and skills including boat handling, rules of navigation, proper safety equipment, weather, boat trailering, lines and knots, first aid and emergency procedures.
Lecture + Lab + Other: 1 + 0 + 0

FIRE F131 Firefighter I, Series I
3 Credits
Offered Fall and Summer
The initial phase in a four-phase process for achieving Alaska State Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of use. Successful completion of all four phases will qualify students for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the Emergency Services Program coordinator.
Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).
Lecture + Lab + Other: 3 + 0 + 0
FIRE F133  Firefighter I, Series II
3 Credits
Offered Fall and Spring
The second phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the Emergency Services program coordinator. An 8 hour Personal Protective equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) safety orientation offered each semester must be completed in order to participate in live fire exercises.
Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).
Lecture + Lab + Other: 2 + 2 + 0

FIRE F135  Firefighter I, Series III
3 Credits
Offered Fall and Spring
The third phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the Emergency Services program coordinator. An 8 hour Personal Protective equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) safety orientation offered each semester and must be completed in order to participate in live fire exercises.
Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).
Lecture + Lab + Other: 2 + 2 + 0

FIRE F137  Firefighter I, Series IV
3 Credits
Offered Fall and Spring
The final phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F143  Firefighter Internship, Series 1
1 Credit
Offered As Demand Warrants
Practical experience in fire operations and training by arrangement through local fire departments.
Lecture + Lab + Other: 0 + 2 + 0

FIRE F145  Firefighter Internship, Series 2
1 Credit
Offered As Demand Warrants
Practical experience in fire operations and training by arrangement through local fire departments.
Prerequisites: FIRE F143.
Lecture + Lab + Other: 0 + 2 + 0

FIRE F147  Firefighter Internship, Series 3
1 Credit
Offered As Demand Warrants
Practical experience in fire operations and training by arrangement through local fire departments.
Prerequisites: FIRE F145.
Lecture + Lab + Other: 0 + 2 + 0

FIRE F151  Wildland Firefighter I
3 Credits
Offered As Demand Warrants
Designed to provide entry-level wildland firefighters the skills and knowledge to safely function as a member of a firefighting crew. Includes fundamental knowledge of wildland fire organization, fire behavior, suppression methods, safety and the incident command system. This course is based on a number of individual National Wildfire Coordinating Group (NWCG) courses. Successful course completion combined with national age and physical fitness requirements will qualify the student for an interagency fire qualification card (red card) with a rating of Firefighter (FFT2). NWCG courses for F151 include: S-130 Firefighter Training S-190 Introduction to Wildland Fire Behavior L-180 Human Factors in Wildland Fire Service L-200 Basic ICS, ICS for Single Resource and Initial Action Incidents.
Cross-listed with WFS F151.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F154  Basic Wildland Fire Safety
1.5 Credits
Offered As Demand Warrants
Designed to meet the training needs of the Advanced Wildland Firefighter. The course includes development of a personal safety program and creating a list of performance standards based on the LCES mnemonic. This course is based on National Wildfire Coordinating Group (NWCG) courses.
Prerequisites: FIRE F151.
Special Notes: NWCG courses include: S-134 LCES.
Lecture + Lab + Other: 1.5 + 0 + 0

FIRE F155  Wildland Fire Behavior I
2 Credits
Offered As Demand Warrants
This course is a classroom-based skills course designed to prepare the prospective fireline supervisor to undertake safe and effective fire management operations. It serves to develop fire behavior prediction knowledge and skills. Fire environment differences are discussed as necessary; instructor will stress local Alaskan conditions. This course is based on a National Wildfire Coordinating Group (NWCG) course.
Prerequisites: FIRE F151.
Special Notes: NWCG courses include: S-290 Intermediate Wildland Fire Behavior.
Lecture + Lab + Other: 2 + 0 + 0
FIRE F159  Wildland Fire Urban Interface Operations  
2 Credits  
Offered As Demand Warrants  
Designed to assist both structural and wildland firefighters who will be making tactical decisions when confronting wildland fire that threatens life, property and improvements in the wildland/urban interface. Instructional units include interface awareness, size-up, initial strategy and incident action plan, structure triage, structure protection tactics, incident action plan assessment and update, follow up and public relations, and firefighter safety in the interface. This course is based on a National Wildland Coordinating Group (NWCG) course.  
Prerequisites: FIRE F151 and WFS F153.  
Special Notes: NWCG courses include: S-215 Fire Operations in the Wildland/Urban Interface.  
Lecture + Lab + Other: 2 + 0 + 0

FIRE F161  Incident Logistics Function  
2 Credits  
Offered As Demand Warrants  
Overview of the support and service branches of the logistics function within the incident command system. Emphasis on entry-level positions of ordering manager, receiving and distribution manager, base camp manager, equipment manager, incident communications manager, security manager and radio operator. This course is based on a number of individual National Wildfire Coordinating Group (NWCG) job aids. NWCG courses include: J-252 Ordering Manager; J-253 Receiving and Distribution Manager; J-254 Base/Camp Manager; J-255 Equipment Manager; J-257 Incident Communications Manager; J-259 Security Manager; J-158 Radio Operator.  
Lecture + Lab + Other: 2 + 0 + 0

FIRE F163  Wildland Fire Dispatch I  
2 Credits  
Offered As Demand Warrants  
The purpose of this course is to provide students with the skills to perform as a dispatch recorder. Topics include the structure of the expanded dispatch organization, description of resource ordering processes, and the importance of effective communication skills and working relationships. Additionally, the course provides a solid foundation on the use of Resource Ordering Statusing System (ROSS), addressing the functions and capabilities of ROSS that will be used by most dispatchers. This is an interactive course that combines lecture and hands on practice in the application. This course is based on National Wildfire Coordinating Group (NWCG) courses: D-110 Expanded Dispatch Recorder; ROSS Dispatch – Basic.  
Lecture + Lab + Other: 2 + 0 + 0

FIRE F165  ICS and the Incident Planning Function  
2 Credits  
Offered As Demand Warrants  
An overview of the Incident Command System principles and planning processes, organizational relationships with other functions, use of planning matrix board, resource management, documentation, demobilization, use of technical specialist and components of an incident action plan. This course is based on Federal Emergency Management Agency (FEMA) courses: I-200 Basic ICS: ICS for Single Resources and Initial Action Incidents; I-300 Intermediate ICS: ICS for Supervisors.  
Prerequisites: FIRE F151.  
Lecture + Lab + Other: 2 + 0 + 0

FIRE F170  Incident Information  
2 Credits  
Offered As Demand Warrants  
This course provides students with the skills and knowledge needed to serve as an entry-level public information officer (PIOF) during an incident or event. Establishing and maintaining an incident information operation, internal and external audience communication, working with news media, handling special situations, and long-term planning and strategy.  
Prerequisites: FIRE F151.  
Special Notes: This course is based on National Wildfire Coordinating Group (NWCG) courses: S-203 Introduction to Incident Information.  
Lecture + Lab + Other: 2 + 0 + 0

FIRE F176  Wildland Fire Ignition Operations  
1 Credit  
Offered As Demand Warrants  
This course introduces the roles and responsibilities of a firing boss (FIRB), common firing devices, and general firing operations and techniques. The course provides students with important information concerning general tasks required to be successful. This course is based on a National Wildfire Coordinating Group (NWCG) course: S-234: Ignition Operations.  
Prerequisites: FIRE F155.  
Lecture + Lab + Other: 1 + 0 + 0

FIRE F202  Fire Protection Hydraulics and Water Supply  
3 Credits  
Offered As Demand Warrants  
Provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and their application to analyze and solve water supply problems.  
Prerequisites: MATH F055 or placement into MATH F105; FIRE F101.  
Lecture + Lab + Other: 3 + 0 + 0

FIRE F203  Hazardous Materials Chemistry I  
3 Credits  
Offered As Demand Warrants  
Basic fire chemistry relating to most categories of hazardous materials including problems of recognition, reactivity and health risks encountered by fire fighters.  
Prerequisites: Satisfactory demonstration of basic chemistry knowledge (pretest).  
Lecture + Lab + Other: 3 + 0 + 0

FIRE F206  Building Construction for Fire Protection  
3 Credits  
Offered Spring  
The components of building construction that relate to fire and life safety. Focuses on fire fighter safety. Includes elements of construction and design of structures shown to be key factors when inspecting buildings, preplanning fire operations and operating emergencies.  
Prerequisites: FIRE F101 or employment or experience in related field, such as fire protection, insurance, construction architecture, or engineering.  
Lecture + Lab + Other: 3 + 0 + 0

FIRE F207  Hazardous Materials Technician  
3 Credits  
Offered As Demand Warrants  
Advanced information for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the hazardous materials technician level (EPA course #165.15).  
Lecture + Lab + Other: 3 + 0 + 0
FIRE F210  Fire Administration I
3 Credits
Offered Fall
Organization and management of a fire department and the relationship of government agencies to the fire service. Emphasis on fire service leadership from the perspective of the company officer.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 1 + 0

FIRE F212  Building and Fire Codes
3 Credits
Offered As Demand Warrants
Introduction to life safety aspects of the uniform building code. Emphasis on uniform fire code for fire inspections on existing buildings, flammable liquids, hazardous materials and special processes. Preparation for the uniform fire code exam administered by the International Conference of Building Officials.
Prerequisites: FIRE F101; FIRE F206.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F214  Fire Protection Systems
3 Credits
Offered Fall
Features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F215  Advanced Hazardous Materials Technician
3 Credits
Offered As Demand Warrants
Provides increased hands-on skills for personnel with a hazardous materials technician rating. Emphasis will be placed on task proficiency in spill containment, plugging, patching, digging and valve shut-offs on large commercial transporters. Stabilization of large and small chlorine leaks and decontamination will also be covered.
Prerequisites: FIRE F207.
Lecture + Lab + Other: 2 + 2 + 0

FIRE F216  Methods of Instruction for Emergency Services Training
3 Credits
Offered As Demand Warrants
Skills necessary to instruct emergency service courses including adult education techniques, classroom setup, use of audiovisual equipment, presentation, and evaluation methods of students and instruction.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F217  Hazardous Materials Technician Refresher
1 Credit
Offered As Demand Warrants
Information and skills required for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the hazardous materials technician level.
Prerequisites: FIRE F206 or equivalent with certification that may not be expired for more than one calendar year.
Lecture + Lab + Other: 1 + 0 + 0

FIRE F218  Advanced Rescue Practices
3 Credits
Offered As Demand Warrants
Provides instruction in four of the most common rescue situations that fire departments encounter in an Interior Alaska rescue: vehicular extrication, rope rescue, confined space rescue and ice/water rescue. Class stresses basic knowledge and hands-on experience. All students are required to wear a complete set of fire department-approved protective clothing (turnout gear). Limited quantities are available for loan through the Emergency Services Program Coordinator.
Prerequisites: EMS F170; FIRE F117.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F219  Rapid Intervention Company Operations
3 Credits
Offered As Demand Warrants
Provides firefighters with the knowledge and skills necessary to work safely and respond appropriately to life-threatening situations. Includes rapid intervention team building skills, self rescue techniques and the knowledge to handle a mayday or high risk/threat situation. Completion of course will qualify students for the state of Alaska certification testing process. All students are required to wear full firefighter personal protective equipment. Limited quantities of PPE are available for loan through the program coordinator.
Prerequisites: FIRE F117, FIRE F131, FIRE F133, FIRE F135 and FIRE F137; or department head approval.
Lecture + Lab + Other: 2.5 + 1 + 0

FIRE F220  Emergency Services Safety, Health and Survival
3 Credits
Offered Fall
Introduces basic principles and history related to national firefighter life safety initiatives, focusing on needed cultural and behavior changes throughout the emergency services. Course examines current and future issues in emergency services including close calls, near misses, line of duty deaths, risk management, mitigation and personal and organizational accountability.
Prerequisites: FIRE F101, FIRE F131, FIRE F133, FIRE F135 and FIRE F137.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F232  Firefighter II
3 Credits
Offered Spring
Advanced technical study of fire alarms, communications, fire behavior, self-contained breathing apparatus, rescue, safety, ladders, fire hose, nozzles and appliances, fire streams, water supplies, sprinklers, overhaul and inspections. All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the emergency services program coordinator.
Prerequisites: FIRE F131; FIRE F133; FIRE F135; FIRE F137.
Special Notes: An eight-hour personal protective equipment and self-contained breathing apparatus safety orientation must be completed in order to participate in live fire exercises.
Lecture + Lab + Other: 2 + 2 + 0

FIRE F244  Firefighter Internship, Series 4
1 Credit
Offered As Demand Warrants
Practical experience in fire operations and training by arrangement through local fire departments.
Prerequisites: FIRE F145 or FIRE F147.
Lecture + Lab + Other: 0 + 2 + 0
FIRE F246  Firefighter Internship, Series 5
1 Credit
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 0 + 2 + 0

FIRE F248  Firefighter Internship, Series 6
1 Credit
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 0 + 2 + 0

FIRE F251  Wildland Firefighter IV
3 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F252  Wildland Fire Prevention I
3 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F253  Wildland Fire Investigation I
3 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F254  Incident Finance and Administration
1.5 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 1.5 + 0 + 0

FIRE F255  Wildland Fire Behavior II
2 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F256  Wildland Fire Planning and Multiple Use Management
3 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F257  Wildland Fire Helicopter Management
2 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F258  Wildland Fuels Management
3 Credits
Offered As Demand Warrants
Prerequisites: Recommended for those who have completed General Firefighter I and II.
Lecture + Lab + Other: 3 + 0 + 0
FIRE F262  Wildland Fire Tactical Operations
2 Credits
Offered As Demand Warrants
This course is intended to produce proficiency in the selection and implementation of wildland fire suppression tactics necessary at the strike team/task force leader level. Topics include fire line construction, use of hand tools, heavy equipment, water and engines, firing operations and using combinations of resources. This is an advanced level course for trained and experienced wildland firefighters. This course is based on a National Wildland Coordinating Group (NWCG) course: S-336 Tactical Decision Making in Wildland Fire.
Prerequisites: FIRE F155 and FIRE F251.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F264  Incident Business Practices
1.5 Credits
Offered As Demand Warrants
Incident business procedures required in entry level staff positions including financial management of a large complex incident. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-261 Applied Interagency Incident Business Management.
Prerequisites: FIRE F254.
Lecture + Lab + Other: 1.5 + 0 + 0

FIRE F270  Wildland Fire Command Function
3 Credits
Offered As Demand Warrants
An overview of the command function including use of single and unified command, roles and responsibilities of the incident commander and staff, development and implementation of strategic decisions, providing information to the media, and managing the incident from initial attack of small, non-complex fires to larger, more complex initial attack suppression organizations dealing with escape attack situations.
Prerequisites: FIRE F151; FIRE F155; FIRE F252; WFS F153.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F276  Prescribed Fire I
2 Credits
Offered As Demand Warrants
Provide a thorough familiarization with the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide. Students will develop the knowledge and skills needed to prepare a prescribed fire plan, in accordance with the guide, ready for technical review and approval. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-341 Prescribed Fire Burn Plan Preparation.
Prerequisites: FIRE F255.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F277  Prescribed Fire II
2 Credits
Offered As Demand Warrants
This course is designed to introduce students to the tools and techniques used to perform in the role of a prescribed fire burn boss. It leads the students through the duties and responsibilities associated with the position including evaluation and implementation of a prescribed fire plan. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-301 Prescribed Fire Implementation.
Prerequisites: FIRE F251; FIRE F255.
Lecture + Lab + Other: 2 + 0 + 0