STRANDS AND STANDARDS
WILDLAND FIREFIGHTER

Course Description

This course is designed to meet the Wildland Firefighter knowledge and skill requirements for NFPA 1051, Wildland Firefighter Professional Qualifications. The course teaches students to recognize the "situation that shout Watchout", apply the appropriate Standard Fire Orders and how to deploy a fire shelter. It includes orientation to the Incident Command System. It teaches basic fireline construction, fire weather, and fire behavior. Each subject covered in this course meets and/or exceeds National Wildfire Coordinating Group (NWCG) standards for the following classes: S-130, S-190, I-100, and L-180.

Intended Grade Level	12
Units of Credit	0.5
Core Code	40.06.00.00.110
Concurrent Enrollment Core Code	40.06.00.13.110
Prerequisite	None
Skill Certification Test Number	NA
Test Weight	NA
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Fire Science
Endorsement 2	
Endorsement 3	

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STRAND 1

Students will describe the basic terminology used in Wildland Fire.

Standard 1

Utilizing pictures and images, students will identify the parts of a wildfire.

- Head
- Flank
- Rear/Heel
- Black
- Perimeter
- Finger
- Spot Fire
- Pocket
- Origin
- Green
- Island

Standard 2

Define the following terms related to suppression and fire behavior.

- Suppression:
  - Anchor point
  - Control line
  - Fireline
  - Mop-up
  - Contained
  - Controlled
  - Chain
- Fire Behavior:
  - Smoldering
  - Creeping
  - Running
  - Spotting
  - Torching
  - Flare-up
  - Fire whirl
  - Backing
  - Flaming front
  - Crowning

STRAND 2

Students will identify and discuss the fire triangle.

Standard 1

Identify and label the three sides of the fire triangle.

- Fuel
- Oxygen
- Heat

Standard 2
Discuss how to break the fire triangle in the wildland setting.
- Cooling
- Smothering
- Starvation/Separation

STRAND 3
Students will describe the methods of heat transfer.

Standard 1
Define the methods of heat transfer.
- Conduction
- Convection
- Radiation

Standard 2
Recognize how heat transfer methods impact the wildland fire behavior.

STRAND 4
Students will identify critical fire weather factors that, combined with receptive fuels, may result in extreme fire behavior.

Standard 1
Describe critical fire weather events:
- Cold fronts
- Thunderstorms
- Winds
- Other

Standard 2
Recognize pyro-cumulus, a phenomena created by large wildfires.

STRAND 5
Students will recognize how alignment of fuels, weather, and topography can increase the potential for extreme fire behavior.

Standard 1
Describe how the primary wildland fire environment components - fuels; weather; and topography; are made more complex by interaction with each other.

Standard 2
Describe how alignment of these components greatly increases the potential for extreme fire behavior.

STRAND 6

Students will describe the purpose of the Standard Firefighting Orders and Watch Out Situations.

Standard 1

List the 10 Standard Firefighting Orders

1. Keep informed on fire weather conditions and forecasts.
2. Know what your fire is doing at all times.
3. Base all actions on the current and expected behavior of the fire.
4. Identify escape routes and safety zones and make them known.
5. Post lookouts when there is possible danger.
6. Be alert. Keep calm. Think clearly. Act decisively.
7. Maintain prompt communications with your forces, your supervisor. and adjoining forces.
8. Give clear instructions and be sure they are understood.
9. Maintain control of your forces at all times.
10. Fight fire aggressively, having provided for safety first.

Standard 2

List the 18 Watch Out Situations

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behavior.
5. Uninformed on strategy, tactics, and hazards.
6. Instructions and assignments not clear.
7. No communication link with crew members or supervisor.
8. Constructing line without safe anchor point.
9. Building fireline downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and fire.
12. Cannot see main fire; not in contact with someone who can.
13. On a hillside where rolling material can ignite fuel below.
14. Weather becoming hotter and drier.
15. Wind increases and/or changes direction.
16. Getting frequent spot fires across line.
17. Terrain and fuels make escape to safety zones difficult.
18. Taking a nap near fireline.

Standard 3

Identify and discuss common denominators on tragedy fires.

- Communication
- Fire behavior
- Terrain
- Fuel Type

Standard 4

Identify and discuss appropriate watch out situations in given scenarios (teacher provided).

Standard 5

Apply appropriate Standard Firefighting Orders to minimize the potential for serious injury or death.

STRAND 7

Students will describe what the Lookouts, Communications, Escape Routes, and Safety Zones (LCES) system is and how it relates to the Standard Firefighting Orders.

Standard 1

Define Escape Route, Escape Time and Safety Zone.

Standard 2

Identify travel barriers that will affect escape time.

- Terrain
- Fuel Load
- Fuel Type
- Fitness Level

Standard 3

List the three types of safety zone categories and describe one example of each.

- Burn
- Natural Features
- Structural Features

Standard 4

Describe the difference between deployment sites and safety zones.

Standard 5

Describe the limitations of utilizing the Incident Response Pocket Guide safety zone guidelines.

STRAND 8

Students will describe the various communication methods and tools used for collecting, producing, and distributing information.

Standard 1

Define Situational Awareness and explain why it is important.

Standard 2

List the five communication responsibilities.

- Brief others as needed.
- Debrief your actions.
- Communicate hazards to others.
- Acknowledge messages.
- Ask if you don't know.

Standard 3

Understand the nine parts of a fire and other useful firefighting terms.

- Origin
- Head
- Flank (right and left)
- Rear/Heel
- Perimeter
- Finger

- Pocket
- Island
- Spot Fire

Standard 4

Recognize and understand basic firefighter terminology and other useful terms.

- Control Line
- Fireline
- Anchor Point
- Mop-up
- Class of Fire

STRAND 9

Students will describe the standards, tools and equipment, and various methods used in fireline construction.

Standard 1

Discuss the purpose of inspecting and properly maintaining hand tools.

Standard 2

Explain the limitations, capabilities and ideal tool order of various, common wildland hand tools.

- Pulaski
- Shovel
- Combi-tool
- Swatter
- McLeod

STRAND 10

Students will describe the methods for extinguishing a fire with or without the use of water.

Standard 1

Describe three methods for breaking the fire triangle.

- Cooling
- Smothering
- Starvation/Separate

Standard 2

Identify and describe the different methods of attack.

- Direct Attack
- Indirect Attack
- Flanking

Standard 3

List variable factors that influence standards for fire line construction.

- Fuel
  - Type
  - Moisture
  - Load

- Weather
  - Wind
  - Temperature
  - Humidity
- Topography
  - Slope
  - Aspect
  - Terrain
- Fire Behavior
  - Rate of Spread
  - Flame height
  - Spotting potential

Standard 4
Discuss the construction of a fire control line with given variables utilizing wildland fire hand tools.

Standard 5
Identify and provide examples of a constructed and natural control line.
- Handline
- Machine line (dozer, tractor plow, etc.)
- Wet line
- Retardant line
- Blackline
- Constructed barriers
- Bodies of water
- Areas of sparse fuel (rock slides)
- Cold fire edge/fire scars

Standard 6
Explain and discuss the purpose of “Mop-up”.

Standard 7
Discuss the limitations and capabilities of simple and progressive hose lays.

Standard 8
Discuss safety precautions/actions for near a water/retardant drop from aviation and other heavy equipment.

STRAND 11
Students will explore the role of human performance and mental readiness in fireline operations.

Standard 1
Define "human factors" and describe how they influence safety and behavior on the fireline.
- Fatigue
- Inexperience
- Distractions
- Stress
- Hazardous attitudes

Standard 2
Describe the concept of situational awareness and explain its importance in emergency environments.
- Gathering information (look up, look down, look around)
- Recognition
- Option selection
- Decision point
- Action
- Re-evaluate/change

Standard 3
Identify the warning signs of loss of situational awareness and analyze case studies where it contributed to fireline incidents.
- Attitudes/opinion
- Stress
- Perception
- Fatigue
- Evolving situation

Standard 4
Apply a basic risk management process to a simulated firefighting scenario.
- Define the context
- Identify potential risk
- Assess and analyze
- Develop alternative plans
- Deciding and implementing
- Evaluating and monitoring

STRAND 12
Students will understand the impact of communication, leadership, and team dynamics on fireline performance.

Standard 1
Describe how communication errors contribute to accidents in high-risk environments.

Standard 2
Identify effective leadership traits and explain the difference between leading and following in wildland fire teams.

Standard 3
Demonstrate the use of clear, concise communication in simulated team-based fireline activities.

Standard 4
Recognize and explain the NWCG leadership values.
- Duty
- Respect
- Integrity

STRAND 13

Students will examine how stress, fatigue, and mental performance impact personal safety and crew cohesion.

Standard 1

Identify the signs of stress and fatigue and explain their effects on performance and decision-making.

- Decreased motivation and moral
- Poor decision making
- Limited situational awareness
- Exhaustion
- Alarm resistance

Standard 2

Compare healthy and unhealthy stress-management strategies for wildland firefighters.

Standard 3

Explore the impact of safety culture and lessons learned from past wildland fire incidents.

Standard 4

Explain how individuals contribute to a strong safety culture within a fire organization.

STRAND 14

Students will summarize the process for application and advancement within the career of Wildland Firefighting.

Standard 1

Understand the application and hiring process for federal and local wildland fire agencies.

Standard 2

Explain the purpose of a Position Task Book and understand the professional development process within Wildland Career Path and Position Catalog (PMS310-1).

Standard 3

Understand the physical standards and expectations of completing a pack test in 45 minutes and/or complete a mile and half run in 13:00.

Performance Skills

1. Demonstrate the proper use of a portable radio by transmitting and receiving information.
2. Demonstrate the care, inspection, and maintenance of protective clothing.
3. Demonstrate the proper wearing of PPE.
4. Demonstrate action to be taken during and after an air retardant drop.
5. Demonstrate the proper deployment of a fire shelter.
6. Demonstrate techniques for inspecting, maintaining, and sharpening hand tools.
7. Demonstrate how to retrieve fire line hose using the single section drain and carry.
8. Demonstrate how to retrieve fire line hose using a figure 8 technique.
9. Demonstrate the proper procedures for carrying hand tools and passing crew members while working on a fire line.
10. Demonstrate proper procedures for passing cutting tools.

11. Demonstrate the proper use of a fire swatter.
12. Demonstrate the proper procedures for assembly, use, and maintenance of a backpack pump.
13. Simulate the proper igniting, use, and extinguishment of a fuse.
14. Demonstrate the proper procedures for assembling a drip torch.
15. Simulate the proper procedures for mixing fuel and fill a drip torch.
16. Simulate the proper procedures for lighting, using and extinguishing a drip torch.
17. Simulate the proper procedures for storage of a drip torch after use.
18. Demonstrate the proper use of tools and appliances during hose lay operations: simple/extended hose lay.
19. Demonstrate the proper use of tools, appliances, and fittings during hose lay operations: progressive hose lay.
20. Demonstrate proper use of hand tools while building a fire control line.
21. Demonstrate the proper building of a cup trench on a slope.
22. Demonstrate the proper building of a control line using the “bump up” or “one lick” technique.
23. Demonstrate a wet mop-up.
24. Demonstrate a dry mop-up.
25. Demonstrate cold trailing of a fire.
26. Demonstrate follow-up procedures for securing a control line.
27. Assemble and prepare for a response.
28. Produce a resume and cover letter for mock interviews in preparation for opportunities for job position openings within wildland firefighting.
29. Conduct an “after-action” review.

Skill Certification Test Points by Strand

This is a new course, no exam yet.

Durable Skills

- Professionalism
- Collaboration
- Communication
- Leadership
- Innovation
- Adaptability

KEY VOCOBULARY CLARIFICATIONS

Anchor Point: An advantageous location or point from which to start constructing a fireline, usually a natural or artificial barrier to fire spread.

Aspect: The direction a slope faces.

Backing: Fire spreading against the wind or downhill.

Blackline: A constructed control line where fuels are burned out to create a wider buffer.

Cold trailing: A method of mop-up where firefighters feel for heat along the fire edge.

Creeping: Fire spreading slowly with a low flame.

Crowning: Fire spreading through the crowns of trees.

Cup trench: A type of trench constructed on a slope to prevent rolling materials from igniting fuels below.

Finger: A narrow strip of fire extending from the main body of the fire.

Fire Triangle: The three elements required for combustion: fuel, oxygen, and heat.

Fire whirl: A spinning column of fire.

Flaming front: The leading edge of a fire where active flaming combustion is occurring.

Flank: The side of a wildfire, typically divided into right flank and left flank.

Green: An unburned area within the fire perimeter.

Handline: A fireline constructed using hand tools.

Head: The most rapidly spreading part of a wildfire.

Island: An unburned area inside the fire perimeter.

Pyro-cumulus: A cloud formation created by large wildfires.

Rear/Heel: The slowest spreading part of a wildfire, typically opposite the head.

Running: Fire spreading rapidly with a well-defined head.

Spotting: The behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the main fire front.

Swatter: A wildland firefighting hand tool used to put out small flames.

Torching: The sudden ignition and burning of a single tree or a small group of trees.

Wet line: A control line created by wetting fuels with water or retardant.