

FIRE 0171 - INTRODUCTION TO WILDLAND FIRE BEHAVIOR S-190

Catalog Description

Hours: 9 Lecture

Description: Wildland fire behavior factors important for understanding fire spread principles and applying safe and effective suppression techniques. Meets standards prescribed by the National Wildfire Coordinating Group and the CA Incident Command Certification System for S-190 certification. (not transferable)

Course Student Learning Outcomes

- CSLO #1: Examine the environmental factors of wildland fire behavior that affect the start and spread of wildland fire.
- CSLO #2: Determine the three principal environmental elements affecting wildland behavior.
- CSLO #3: Describe the effect relative humidity has on wildland fire.
- CSLO #4: Evaluate four factors of topography that affect wildland fire behavior.

Effective Term

Fall 2022

Course Type

Credit - Degree-applicable

Contact Hours

9

Outside of Class Hours

18

Total Student Learning Hours

27

Course Objectives

1. Describe the three sides of the fire triangle.
2. Examine the environmental factors of wildland fire behavior that affect the start and spread of wildland fire.
3. Examine three methods of heat transfer.
4. Determine the three principal environmental elements affecting wildland fire behavior.
5. Analyze three factors of fuel that affect the start and spread of wildland fire.
6. Examine three factors of weather that affect fuel moisture.
7. Examine how wind affects wildland fire spread.
8. Describe how slope affects wildland fire spread.
9. Evaluate four factors of topography that affect wildland fire behavior.
10. List indicators of an approaching cold front and describe what wind changes to expect.
11. Compare three common foehn wind conditions and the areas in which they occur.

12. Identify a thunderstorm and describe how and when it is dangerous.
13. Diagram the daily cycle of slope and valley winds.
14. Describe the effect relative humidity has on wildland fire behavior.
15. Examine the wildland environment indicators that can produce problem and extreme fire behavior.

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- Not Transferable

Methods of Evaluation

- Classroom Discussions
 - Example: The instructor will lead a classroom discussion on foehn winds and when and where are they likely to occur. Students will be evaluated based on their participation and involvement with the discussion.
- Objective Examinations
 - Example: Students will be given a multiple-choice examination on the factors that affect fire spread. Standard Grading. Example Question: What are the 3 main factors affecting wildfire spread? A. Fuel, Weather and Topography, B. Fuel, Weather and Wind, C. Weather, Topography and Terrain, D. None of the Above.
- Problem Solving Examinations
 - Example: Students will work in small groups and determine the difference between a stable and an unstable atmosphere and how does each affect fire behavior differently. Students will then present their findings to the class. Rubric Grading.

Repeatable

No

Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. The instructor will lecture on the three environmental elements that influence wildland fire behavior. Students will then work in small groups using provided scenarios to discuss and list the principal factors of the elements which affect the start and spread of wildland fire.
2. The instructor will lead a discussion on the fire triangle and heat transfer and the students will then compare and contrast these two factors in wildland fires and structural fires.

Distance Learning

1. Online lecture and discussion on wind and wildfire spread, followed by students examining how wind affects wildland fire spread and present a report outlining these effects. Reports are posted for instructor and student feedback.

Typical Out of Class Assignments

Reading Assignments

1. The students will read the material on heat transfer and then outline how this applies to wildland fires. 2. The students will read the material in the textbook on fire weather and then be prepared to discuss in class how a wildland fire may affect atmospheric stability.

Writing, Problem Solving or Performance

1. Analyze a provided picture and explain what is happening in respect to wildland fire behavior. 2. Diagram the daily cycle of relative humidity and fuel moisture as it pertains to wildland fire conditions.

Other (Term projects, research papers, portfolios, etc.)

Required Materials

- Introduction To Wildland Fire Behavior S-190
 - Author: National Wildfire Coordinating Group
 - Publisher: U.S. Government
 - Publication Date: 2009
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Fundamentals of Fire Fighting Skills
 - Author: International Association of Fire Chiefs and National Fire Protection Association
 - Publisher: Jones and Bartlett
 - Publication Date: 2014
 - Text Edition: 3rd
 - Classic Textbook?:
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.