

**NorthWest Arkansas Community College**  
**Division of Health Professions / Fire Science**

**Course Number and Title**

Fire 2053 Fire Service Hydraulics and Water Supply

**Catalog Description**

This course deals with the principles and formulas for fire ground hydraulics and pump operations of water systems, private, public, standpipes and sprinklers; nozzle pressures, friction losses, and effective fire streams and water supply problems. Included will also be the maintenance and operation of emergency vehicles and solutions of problems involving fire streams.

**Prerequisites**

None

**Credit Hours/ Contact Hours/ Load Hours**

3/3/3

**Target Audience/Transferability**

Designed especially for students who plan to enter, or are currently in, the fire service. This course serves as a foundation for practical applications of fire flow hydraulics and evolutions.

**Student Learning Outcomes**

Students completing this course will be able to:

Knowledge:

1. Identify the various types of fire streams and appliances.
2. Recall formulas that pertain to fire calculations.

Abilities:

3. Calculate variables that affect fire flow, and determine actual fire streams flow.

Understanding:

4. After completion of this course, recognize the importance of managing water supply effectively on the fire scene.

**Topics:**

- A. Basic study of Fire and Water
- B. Water Fire Streams
  1. Water Supply
  2. Fire Apparatus and Equipment
  3. Types of Fire Streams
  4. Fire Stream Appliances
- C. Foam Fire Streams
- D. Developing Fire Streams
  1. Determining Friction Loss
  2. Determining Water Flow in Gallons Per Minute
  3. Fire Hose Layout
  4. Pumping from Various Water Sources
  5. Fire Application of Water Flow
  6. Supplying Private Fire Protection Systems
- E. Fire Stream Strategies and Tactics

**Forms of Assessment**

Based upon written exams, students will demonstrate ability to recall facts and fire stream formulas, and how to manage water supplies on the fireground, via written exam with a minimum cumulate grade of 70%.