INSTRUCTION TO FIRE MANAGEMENT
FORESTRY 3237 SPRING 2024

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Office Hours: Via email or cell phone (936-645-7990). Open door when in building.
Department: Arthur Temple College of Forestry and Agriculture
Class Meeting time and place: M,W 9-9:50, Room 221 Forestry Building

Course Description: Explore fire history in the U.S., fire occurrence, effects and behavior, detection and control. The integration of fire in land management planning and policy will also be stressed. Prerequisite: FOR 209 or permission of instructor.

Program Learning Outcomes (PLO’s):

Forestry 337 is one of the forestry core courses required of all forestry majors and thus competency is required. A minimum grade of a “C” must be attained or the course will have to be repeated. The following course learning outcomes (PLO’s) have been approved for the Bachelor of Science in Forestry (BSF) degree program:

1. Demonstrate understanding and competency of forest ecology and biology (PLO1);
2. Demonstrate understanding and competency in the measurement of forest resources (PLO2);
3. Demonstrate understanding and competency in managing forest resources (PLO3);
4. Demonstrate understanding and competency of forest resource policy, economics, and administration (PLO4);
5. Demonstrate understanding and competency in oral and written communication skills (PLO5).

Student Learning Outcomes:
1: Demonstrate knowledge of the importance of fire as a factor in forest and range environments (I, PLO 1).
2: Demonstrate understanding of the basic principles of combustion of forest and range fuels, (I, PLO1).
3: Demonstrate knowledge of fire behavior and fire ecology under various conditions (I, PLO1).
4: Demonstrate the ability to identify current problems/trends in fire management prevention, detection and suppression (A, PLO4).
5: Demonstrate the ability to describe the use of fire in land management (A, PLO3)
6: Demonstrate the ability to critically think about Wildland fire issues as well as communicate in both written and oral forms (I, PLO5).

A: Advanced – FOR 337 supports Program Learning Outcome by providing students with transitional, high level topic-specific information, activities, and
opportunities that enable the students to apply their critical thinking and tactical skills to resolved increasingly challenging strategic situations.

I – Intermediate – course supports Program Learning Outcome by providing students with topic-specific information, concepts, applications, and lab activities that increase the students’ skills in making tactical implementation decisions relative to the expected outcomes.

References: Pyne, Andrews and Laven, 2\textsuperscript{nd} Ed. Introduction to Wildland Fire. Not required.

Course Requirements:
- 4, 100 point semester exams
- Final is optional for those with C or better from 4 exams; required for those with D or F. Will replace lowest test grade BUT CAN’T LOWER YOUR TOTAL POINTS!

Keep track of your grades when I return tests so you know how you are doing in the class!

Grading Policy:
Each semester exam is worth 25\% of final grade. Since the weight of each assignment is listed, a student should be able to determine their own performance in the class. Do not expect me to do this for you!

Attendance Policy:
Class attendance and participation is expected except for valid excuses. Being late regularly during synchronous sessions is not acceptable and will result in loss of points.

Academic Integrity
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism. As SFA transitions to being part of the UT System, there are changes in how academic dishonesty incidents are handled compared to the past. See https://www.sfasu.edu/docs/policies/10.4.pdf. A complete copy of the 2023-2024 Handbook to the Code is found on the D2L site for this class.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Cheating or plagiarism may result in a least a “zero” on the assignment in question, and possibly an “F” for the course. This
includes texting friends during tests, cutting/pasting lecture material into tests, and using AI generated materials (Chat GPT, etc).

**Acceptable Student Behavior**
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

**Withheld Grades Semester Grades Policy (A-54)**
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).
TENTATIVE COURSE SCHEDULE
INTRODUCTION TO WILDLAND FIRE FUNDAMENTALS

Fire as Chemical and Physical Event
Regulated Fires
Free-burning Fires
Combustion
Fuel Types in wood
Phases of Combustion
Moisture of Extinction
Thermal Conductivity/Diffusivity
Surface/Volume Ratio
Phases of Combustion
Heat Transfer
Flaming Combustion and Dimensions
Fireline Intensity
Rate of Spread
Glowing Combustion
Head Fires
Back Fires
Flank Fires
Products of Wildland Fires-Burning, not ecological effects

FIRE BEHAVIOR

Fire Growth
Self-sustaining fires
Large fires/Fire Complexes
Rate of Spread
Intensity
Fireline and Fire Intensity
Fire Shape and Growth
Types of fire
Rate of Spread Factors
Modes of Propagation
Erratic Fire Behavior
Crown Fire Factors
Fire Vortices/Fire Whirls

TEST 1

FUELS

Fuel type and Moisture
Fuel Models
Appraising Fuels
Fuel Loading
Moisture Content
Fuel Models
Fuel Complexes
FIRE WEATHER

Atmospheric Stability
Indicators of Stability/Instability
Inversion Layers
Atmospheric Stability effects on Fire Behavior
Moisture
Wind
Fire Danger Rating

TEST 2

Fire and Humans

Fire Regime
Fire History
Fire Cycle
Mean Fire Interval
Fire and Native Americans
Fire and European Settlement
Major Fires (see handouts)
Fire and Regulations/Laws
History of Fire Attitudes
Commonalities of Large Fires

FIRE MANAGEMENT

Objectives of Fire Management
Considerations/Perspectives when looking at Fire Management in US
   Historical
   Political
   Administration
   Economic
Fire Management Structure
Fire Prevention
Problem Fires
Detection and Communication
Fuels Management
Fire Suppression
Control
Fire Fighting Orders

TEST 3

FIRE ECOLOGY

Species survival after fire
   Adaptability
   Survival
General Effects on Soil
   Physical Changes, texture, water repellency
Chemical Changes
Microorganisms
General Effects on Watersheds, Water
General Effects on Air
General Effects on Vegetation
Bark vs. Cambium
Specific Communities
  Grasslands
    Shortgrass
    Mixed-grass
    Tallgrass
  Semi-desert shrub-grasslands
  Chaparral
  Sagebrush
  Pinyon-Juniper
  Western Conifers
  Southeast Forests
  Northeast/Northern Forests

**TEST 4**