INTRODUCTION TO FIRE MANAGEMENT
FORESTRY 3237

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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 8-8:50, Room 225 until Thanksgiving break, then synchronous and asynchronous

COVID-19 MASK POLICY Masks (cloth face coverings) must be worn over the nose and mouth at all times in this class and appropriate physical distancing must be observed. Students not wearing a mask and/or not observing appropriate physical distancing will be asked to leave the class. All incidents of not wearing a mask and/or not observing appropriate physical distancing will be reported to the Office of Student Rights and Responsibilities. Students who are reported for multiple infractions of not wearing a mask and/or not observing appropriate physical distancing may be subject to disciplinary actions.

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.


Course Requirements:
• 4 , 100 point semester exams (all virtual via email).
• Final is optional for those with C* or better from 4 classes; required for those with D or F. Will replace lowest test grade.

Tentative Course Calendar: See schedule provided.

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 (A-9.1)
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.

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. Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp. Cheating or plagiarism may result in at least a “zero” on the assignment in question, and possibly an “F” for the course. This includes texting friends during tests and cutting/pasting lecture material into tests.

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/.

INTRODUCTION TO WILDLAND FIRE FUNDAMENTALS
Fire as Chemical and Physical Event
Regulated Fires
Free-burning Fires
Fire
Combustion
Fuel
  Cellulose
  Hemi-cellulose
  Lignin
  Extractives
Phases of Combustion
  Pre-ignition
  Pre-heating
  Dehydration
  Pyrolysis
  Moisture of Extinction
  Thermal Conductivity/Diffusivity
  Surface/Volume Ratio
  Combustion
  Ignition
  Extinction
Heat Transfer
  Convection
  Conduction
  Radiation
Flaming Combustion
  Flame Height
  Flame Length
  Flame Depth
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
  Intensity and Growth
Self-sustaining fires
Large fires/Fire Complexes
Rate of Spread
Intensity
Fireline Intensity
Fire Intensity
Fire Shape and Growth
Ground Fires
Surface Fires
Crown/Canopy Fires
Rate of Spread Factors
FUELS

Fuel Moisture
- Live Fuels
- Dead Fuels
Fuel Models
Appraising Fuels
Fuel Loading
Moisture Content
Fuel Models
Fuel Complexes

FIRE WEATHER

Atmospheric Stability
Indicators of Stability/Instability
Inversion Layers
Haines Index
Atmospheric Stability effects on Fire Behavior
Moisture
Wind
Fire Danger Rating
Burn Period
Critical Fire Periods
Fire Season
Fire Climates

FIRE ECOLOGY

Species survival after fire
- Adaptability
- Survival
General Effects on Soil
- Physical Changes, texture, water repellency
Chemical Changes
- Ph
- Nitrogen
- Sulfur
- Phosphorus
- Potassium
- CEC
- Calcium/Magnesium

Microorganisms

General Effects on Watersheds, Water
- Interception
- Infiltration
- Runoff

Soil Movement

Water Quantity and Quality

General Effects on Air
- Smoke Management

General Effects on Vegetation
- Direct vs. Indirect
- Growth stimulation/stress
- Foliar damage-scorch
- Grass/Shrubs

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

Fire and Humans

Fire Regime
Fire History
  - How to measure
Fire Cycle
Mean Fire Interval
Fire and Native Americans
Fire and European Settlement
Major Fires (see handouts)
Fire and Regulations/Laws
  - Timber Culture Act
  - Transfer Act
Clark-McNary Act
History of Fire Attitudes
  Frontier Fire
  Backcountry Fire
  Mass Fire
  Wilderness Fire
  Today?
Commonalities of Large Fires
  Weather
  Fuels
  Timing
  Cause

**FIRE MANAGEMENT**

Objectives of Fire Management
Considerations/Perspectives when looking at Fire Management in US
  Historical
  Political
  Administration
  Economic
Fire Management Structure
  Federal
  State
  Private Sector
  International
Fire Prevention
  Education
  Engineering
  Enforcement
  Weather Modification
Problem Fires
Detection and Communication
Fuels Management
  Reduction
  Conversion
  Fuel Isolation
Fire Suppression
  Wildfire
  Escaped Fire
  Prescribed Fire
Control
  Direct
  Perimeter
  Prescription
Fire Fighting Orders
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