***Reedley College*** *– Natural Resources/Forestry/Wildland Fire Technology*

**Course:** NR 44 – Section 57726

**Title:** FIRE ECOLOGY

Wednesday – 6:00 to 8:50 p.m.

**Dates:** August 14, 2019 to December 11, 2019

**Room:** FEM 8

**Syllabus**

**Instructor:** Adam Hernandez

**Office Telephone:** (559)638-0300 ex. 3496

**Email:** adam.hernandez@reedleycollege.edu

**Office Location:** FEM-10

**Office Hours:** Monday, 11:00-1:00pm & 5:00-6:00pm/Tuesday, 8:00-10:00

**Drop Deadline: September 9, 2019 -** (to avoid a “W” on transcript)

**October 4, 2019 –** Final Drop Date

**Final Exam:** December 11, 2019

**Text Book:** No text Book will be required, however, reference materials will be required and made available, and or, accessed by the student through online references.

**Course Prerequisite:** None

**Holiday/No Class:** September 2, 2019 – Labor Day

 October 14, Columbus Day – Indigenous People’s Day

 November 28, Thanksgiving

**Course Description:**

Preparation for employment and advancement within a State or Federal wildland fire agency. This course will convey what is currently understood about the role of wildfire in major ecosystem types. Analysis of plant and animal characteristics that appear to have coevolved with fire regimes and how human cultures have used and modified fire regimes, historically and currently.

**Course Objectives:**

This course is designed provide students with the principles to evaluate the impacts of fire on vegetation, soils, and wildlife across different California bioregions and under a broad range of conditions. Students will become familiar with fire regimes, histories and ecology of major forest, rangeland and wetland ecosystems as they relate to natural and anthropogenic fire and fire suppression. This includes an understanding of:

* How fire interacts with abiotic and biotic components of ecosystems (i.e., plant communities, fuels, climate, topography, and soils) to affect forest and landscape structure and composition, both historically and currently.
* The role of fire as an ecosystem process.
* The use of fire in natural resource management, ecological restoration, and wildlife habitat enhancement.

This course focuses on the ecological aspects of fire science and how it relates to information that land managers, biologists, and policy makers are likely to require when making decisions associated with wildland fires.

**Learning Outcomes:**

In the process of completing this course students will:

1. Evaluate the impacts of fire, including pre- and post-fire conditions of sites, to predict potential short- and long-term outcomes of fire on ecosystems.

2. Describe fire regime relationships to various ecosystems and discuss the attributes for fire regime classification.

3. Gather data for fire history analysis.

4. Describe fire climate variables and how they affect fire return intervals and fire intensities.

5. Describe and explain fire regimes, histories and current fire dynamics associated with major forest, range and wetland ecosystems and predict first order fire effects.

**Cancelled Class Notification:** Communications for class cancellations will be made by your instructorthrough your preferred email account which will be collected the first day of class.

**Behavioral Standards:**

* ***Respect and Common Courtesies:*** Students and teachers greatly appreciate attention to appropriate classroom courtesy. Please take care of personal needs (e.g., using the restroom, getting a drink, sharpening a pencil) before class begins. Foul language or disruption to the instruction will not be tolerated. All class attendees will treat and be treated with respect or will be asked to leave the class by the instructor. There will be no tobacco use in any building or school farm.
* ***Attendance and Punctuality:***I start class on time and take roll. Please do not be late. If you are late, it is your responsibility to ensure that you are counted for attendance **after** class. To be considered present, students should be in class, attentive, properly attired, and ready for classroom or field activities regardless of weather or other factors. ***Two tardies will count as one absence.* *Roll will be taken at each session and students will be dropped if four absences are accrued unless specific arrangements are made.*** Field trips/exercises missed cannot be made up.
* ***Technological Gadgets:*** Please turn off or silence cell phones when entering the class. Students may not use cell phones during class. For any cell phone use, including texting, you will be asked to leave class.
* ***Preparedness:*** Personal Protective Equipment (PPE) is mandatory for all field exercises. Safety rules must be strictly followed including the use of personal protective equipment (PPE) and cautious behavior. Students who fail to have in possession all PPE for field trip/exercises will not be allowed to participate, will be dismissed from the day’s exercise, and will be charged an absence for the day. ***SEE STUDENT REQUIRED PPE listed items at the end of this document.***
* ***Classroom Visitors:*** It is not acceptable to bring guests to class.
* ***Late Work:*** Work that is turned in late will lose 10% percentage grade points for each class session that is missed. (one class session late = -10% two class sessions late = -20%. Make up work ***will not*** be accepted after 3 missed sessions)
* ***Make-ups:*** Make up work will be accepted at the discretion of the instructor. All make up work must be discussed and approved by the instructor. Do not assume that make up work will be made available to you.
* ***Extra Credit:*** Extra Credit opportunities may be made available throughout the semester. Opportunities will be communicated as they arise.

**Academic Dishonesty, Plagiarism and Cheating:**

Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly obtained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences. Refer to the college catalog for further details surrounding actions that will be implemented regarding academic dishonesty.

Plagiarism is the adoption or reproduction of the ideas or words or statements of another person without due acknowledgment. Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers in an attempt to gain an unearned academic advantage. Cheating can take the form of the storing of information in graphing calculators, pagers, cell phones, and other electronic devices. Therefore, no items of any kind may be on the desktop, including water bottles, during testing. Students may not wear hats/caps during testing. Incidents of cheating and plagiarism may result in a variety of sanctions and penalties, which may range from a failing grade on a particular examination, paper, project, or assignment in question to a failing grade in the course at the discretion of the instructor and depending upon the severity and frequency of the incidents.

**Accommodations for students with disabilities**:

 If you have a verified need for an academic accommodation or materials in alternate media (e.g., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act please contact me as soon as possible. **A formal counseling assessment to determine the appropriate accommodation is required before any accommodation(s) can be made. The counseling center facilitates the process.**

Course Outline:

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| Session Date | Chapter/Resource | Topic/Discussion Emphasis |
| 8/14 |  | Course introduction and survey. What is fire ecology? |
| 8/21 |  | Fire as a physical process Fire behavior triangle - Fuels, Topography, Weather |
| 8/28 |  | Fire as an Ecological Process, Introduction to fire regimes |
| 9/04 |  | Fire History Methods and Fire Behavior Models Tree burn scar in-class lab assignment  |
| 9/11 |  | Fire and Physical Environment - Soil, Water, Air |
| 9/18 |  | California vegetation and climate, Introduction to California bioregions |
| 9/25 |  | Introduction to plant terminology and communities, structure, composition |
| 10/02 |  | Fire and plant interactions, FEIS |
| 10/09 |  | Fire and animal interactions, FEIS |
| 10/16 |  | **Midterm** |
| 10/23 |  | Fire, watershed resources and aquatic ecosystems |
| 10/30 |  | Fire regimes of specific California bioregions (several class sessions) |
| 11/06 |  | Chaparral, desert, forest |
| 11/13 |  | Fire and invasive plant species, Fire and endangered/at-risk species |
| 11/20 |  | Field trip (\*date to be announced\*) |
| 11/27 |  | Future of fire in California, History and Policy |
| 12/04 |  | Opinions and final messages |
| 12/11 |  | **Final Exam (6 p.m.)** |
| Notes: |

**Field Trip**:

One field trip to Sierra National Forest burn site will be required. Students will be able to view, first hand, the effects of fire and fire exclusion in a forest ecosystem and compare their findings to an ecosystem where the historic fire regime has been reintroduced by successive fires. Presentations will be made by fire ecologists from the US Forest Service and/or other wildfire research institutions. A written paper will be required in lieu of field trip participation.

**Grading Policy**: Grading will be based on the results of two assignments/quizzes, field trip participation, midterm and final exams. Assignments must be submitted on the due date or earlier. **Assignments and exams will be based on lectures, in-class labs, and reading assignments. Please read all assigned readings!**

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| **Grade Distribution** |
| A = 270-300 Pts. | 90-100% |
| B = 240-269 Pts. | 80-89% |
| C = 210-239 Pts. | 70-79% |
| D = 180-209 Pts. | 60-69% |
| F = Below 180 Pts | Below 60% |

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| **Assignment Type** | **Possible Points** |
| Assignments/Quizes | 2 @ 25 Pts ea. = 50 |
| Mid-Term Exam | 75 |
| Final Exam | 100 |
| Field Trip Participation and or Paper | 75 |
| **TOTAL Points Possible** | **300** |

**Student Required PPE for Field Trips:**

*Each student must have the following items during each class in order to be allowed to participate and earn credit for field trip.*

- Hardhat

- Leather Gloves

- Water container (1-quart canteens or water bottles)

- Leather Boots (minimum 8” high uppers, nonskid soles preferably Vibram, no steel) (estimate $200)

- Long Pants w/ Belt (no cuffs, NO HOLES)

- Long Sleeve Cotton Work Shirt (NO HOLES)

- Backpack sufficient to carry hardhat, gloves, safety glasses, water, and food (needs to be in addition to your regular school backpack). Chest and waist straps are advisable.

\*\*\* Details will be given during the first class meeting\*\*\*