Meeting Times:

Monday and Wednesday 8:30-9:20 a.m. – NR 217
Wednesday 2:30-5:30 p.m. laboratory exercises -field based

Course Description:

Forest Vegetation Disturbance: Ecology and Management is an upper division course designed for Natural Resource Management students. This class will introduce students to the basic scientific tenets of disturbance ecology in intermountain forests as they interact over time and space. While many agents of disturbance will be discussed, principle emphasis is placed on wildland fires, bark beetles and snow avalanches to develop the general concept of the disturbance regime. The majority of the laboratory sessions are field oriented to observe the specific examples illustrated and discussed in lectures.

Text: Wildland Disturbance: Ecology and Management by Michael Jenkins (posted on Canvas); additional readings posted on Canvas.

The text is a compilation of research papers and publications, and represents an attempt to integrate the diverse topics considered. The text is available on Canvas.

Course Objectives:

Obj1 Gaining factual knowledge (terminology, classifications, methods, trends).
Obj2 Learning fundamental principles, generalizations, or theories.
Obj3 Learning to apply course material (to improve thinking, problem solving, and decisions).

Course Evaluation:

Students will be evaluated homework and participation in field experiences (60%) and a Final project (40%). Following each field trip, a short written or data analysis report will be assigned and due by 8:30 am the following Wednesday after each field trip.

Tentative Course Syllabus – subject to change based on guest speakers' schedules

Introduction and Overview
  Concepts of Disturbance and Forest Health
  Chapter 1
  Forest Succession and Measurements
  Chapter 3 and 4
  Forest Inventory
  Disturbance Regimes
  Ecological Principles
  Chapter 5
**Bark Beetle Biology and Ecology**  
Chapter 2 and 10

**Forest Pathology Overview**

**Wildland Fire Management**  
Introduction to Fire Behavior  
Weather and Topography  
Fire Behavior Prediction System  
Chapter 9 and BEHAVE / FARSITE

Fuels and Fuels Inventory  
Chapter 8  
Fire History  
Chapter 2 and 7  
Beaver Mt. Fire  
Principles of Fire Management  
Chapter 6

**Bark Beetles, Disturbance, Fuels and Fires Interactions**  
Chapter 2

**Invasive Species Ecology and Management**

**Forest Health Protection**  
Chapter 14

**Snow and Avalanches**  
Chapters 11, 12 and 13  
Wood Camp Hollow

**Important dates:**

- **Monday, Sept 5**  Labor Day Holiday – **no class**
- **Wednesday, Sept 21**  Guest lecture – Forest mensuration - Forest Demography group
- **Wednesday, Sept 21**  Guest lecture – Dendrochronology – Dr. Justin DeRose
- **Wednesday, Oct 12**  Guest lecture – Forest Health – Danielle Malesky
- **Wednesday, Oct 18-19**  Restoring the West Conference 2016  ([http://www.restoringthewest.org](http://www.restoringthewest.org))
- **Wednesday, Nov 2**  Invasions/Wetland Disturbance - Wetland Ecology group
- **Wednesday, Nov 7**  Guest lecture – Gap Dynamics – Dr. Julia Burton
- **Wednesday, Nov 9**  Guest lecture -- Recreation Impacts – Abigail Kidd
- **Wednesday, Nov 23**  Thanksgiving Holiday- **no class**
- **Wednesday, Dec 3**  Poster Presentations
Field Trips

Overview:

Weekly field trips are designed to provide students with the opportunity to examine different disturbance processes that commonly affect forest ecosystems of the Intermountain West, while further supplementing course concepts and material. The intent of the field trips are to create an informal atmosphere where students use past / present disturbance evidence to gain a better understanding of how these processes might impact future forest conditions. Participation and discussion during field trips is highly encouraged and an integral part of this course.

All field trips will take place outside in all weather conditions and involve some form of hiking over uneven terrain. Students are encouraged to dress accordingly and prepare to be outside for 2-2.5 hrs. **Closed toed shoes or boots are required for field trip participation. Attendance for all field trips and lab exercises is mandatory.** In the event you are unable to attend, please contact the instructor or T.A. prior to the day of the field trip.

Following each field session, a short written report or data analysis question will be assigned (see assignment section).

Meeting Times:

Field trips will take place Wednesdays: 2:30 pm- 5:30pm and will utilize the entire lab period. Please arrive at the meeting location on time, and plan to depart for the field trip site by 2:35 pm.

*Meeting Location:*

Students will meet at the **Logan Ranger District parking lot**, 1500 E. Hwy. 89, Logan, UT (across campus before the mouth of Logan Canyon (see attached map)).

*Transportation:*

**Students are required to provide their own transportation and are encouraged to form carpools.** To speed up the field trip departure schedule, attempt to form car pools prior to the afternoon for each field trip.

*Recommended Equipment:*

- hiking boots
- sunscreen
- rain gear
- water
- hat/warm clothing
- note pad and pencil or pen

*Field Trip Assignments:*

Following each field trip, a short written report or data analysis exercise will be assigned. Students should utilize readings, lectures, and field trip discussions to complete each assignment. Assignments will be submitted via email to **curtis.gray@aggiemail.usu.edu**, or using Canvas, by 8:00 am on the Wednesday following each field trip. Please include your name and assignment number in your file upload title.
## Tentative Field Trip Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Locations</th>
<th>Theme</th>
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</thead>
<tbody>
<tr>
<td>31-Aug</td>
<td>Providence Canyon</td>
<td>Fire</td>
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<tr>
<td>7-Sep</td>
<td>USU experimental forest</td>
<td>Forest mensuration</td>
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<tr>
<td>14-Sep</td>
<td>USU experimental forest</td>
<td>Forest mensuration (FIA exercises)</td>
</tr>
<tr>
<td>21-Sep</td>
<td>USU experimental forest</td>
<td>Spruce beetle</td>
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<tr>
<td>28-Sep</td>
<td>Guest lecture</td>
<td>Dendrochronology</td>
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<tr>
<td>5-Oct</td>
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<td></td>
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<tr>
<td>12-Oct</td>
<td>Computer Lab</td>
<td>Change Detection</td>
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<tr>
<td>19-Oct</td>
<td>Restoring the west</td>
<td>Conference</td>
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<tr>
<td>26-Oct</td>
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<tr>
<td>2-Nov</td>
<td>Guest lecture</td>
<td>Invasions in wetlands</td>
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<tr>
<td>3-Nov</td>
<td>Guest lecture</td>
<td>Invasive species</td>
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<tr>
<td>9-Nov</td>
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<tr>
<td>16-Nov</td>
<td>Woodcamp</td>
<td>Avalanche</td>
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<tr>
<td>23-Nov</td>
<td>Thanksgiving - no field trip</td>
<td></td>
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<tr>
<td>30-Nov</td>
<td>No lab</td>
<td>Poster presentations</td>
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</tbody>
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1-2 computer labs

Past field trips:

- Hardware ranch and invasive species
- Limber pine trail and sunrise campground visit
- Beaver mountain fire and DFB beetle
- Forestry field station -DFB, fire, and avalanche interactions
- Green canyon-fuels measures
The final project for this class will be presented as a poster on the last day of class.

The poster should include:

1. **Introduction**
   Sets the stage for the work, and provides a statement of objectives and/or hypothesis

2. **Literature Review**
   A review of the pertinent literature that supports your work. Basically a linkage and interpretation of available literature written in your words.

3. **Study Area**
   A factual description of the biophysical and geographic setting of your study site.

4. **Methods**
   This section describes the methods and processes that you used to collect and interpret your data and the assumptions that you made relative to data collection and analysis.

5. **Results**
   A factual representation of the quantitative and/or qualitative results from your analysis. Do not interpret the results just report them.

6. **Conclusion/Discussion**
   An interpretation of the results, evaluation of assumptions, new problem identification.

7. **References**
   Citations of published or available manuscripts, web pages, etc., supporting your hypothesis, assumptions, methodology, and conclusions. These articles are cited using the following standard: