

Geography 455: Pyrogeography (Fall 2013)

Lecture: Mon, Wed 1-2:50 pm (Dean 112)- 4 credits

Instructor: Dr. Megan Walsh, 308 Dean Hall, 963-3699; email: WalshMe@cwu.edu, office hours: Monday 3-4 pm and Thursday 9-10 am, or by appointment.

Prerequisites: Geog 107 (Physical Geography) or similar preparation, or consent of instructor.

Course objectives:

- To gain an understanding of fire ecology and fire's effects on air, water, soil, flora, and fauna.
- To be able to describe where and why fires occur globally and how humans play a role in altering natural fire regimes.
- To be able to discuss fire history methods and to use these data to describe how fire regimes have change from pre-historic to historic times.
- To explain how current fire regimes of the western United States and other fire-prone regions of the world have changed as a result of fire-management policies.
- (Reading) To be able to read scientific literature, glean the most important information, and be able to discuss it in a classroom setting.
- (Research/Writing/Speaking) To be able to successfully research a topic related to pyrogeography, write a scientific paper about that research, and articulately present your findings to the class (graduate students only)

Readings and other resources:

All of the readings for the course will be available through Blackboard. Please make sure that you have access to Blackboard so you can find the readings. You need to make sure you have read the assigned readings before coming to class, especially on discussion days. You will need to bring hard copies of the readings with you on discussion days. If you prefer to access the readings via a tablet or laptop that is fine, but make sure you can access them during our class discussions.

Lecture notes, announcements, grades, assignments and other information will also be posted on Blackboard. Make sure you check this regularly to insure you know what is going on in class. All assignments will be submitted via Blackboard unless otherwise noted.

Grading: Your grade in the course will be based on your performance on:

- Exam 1 (25%)
- Exam 2 (25%)
- Final research paper (20%)
- Reading quizzes (10%)
- Fire in the news write-up (5%)
- Discussion leader (5%)
- Field trip participation and write-up (5%)
- Class attendance and participation (5%)

Grades will be assigned based on the following scale:

- A = 100-94, A- = 93-90
- B+ = 89-87, B = 86-83, B- = 82-80
- C+ = 79-77, C = 76-73, C- = 72-70
- D+ = 69-67, D = 66-63, D- = 62-60
- F = 59 and below

Exams (50%): There are 2 exams in this course worth 25% each. **You will not be allowed to miss or make up an exam unless you notify me ahead of time, and then only at my discretion.** Exam questions will consist of a mix of short, medium, and long-answer questions, and will emphasize concepts discussed in class and in the readings. Any material presented during lectures and in the readings is fair game for the exams.

Attendance (5%): Class will meet for 2 hours twice a week. Lecture/discussion attendance will be recorded daily and attendance is expected. You will be allowed to miss two class periods without it affecting your grade, however, after that you will lose points from your attendance grade for every additional class you miss. If you have a documentable emergency, please talk to me as soon as possible. Furthermore, the participation portion of your grade will not be based solely upon your

presence in class, but also on your contribution to in-class discussions. It is in your best interest to come to class ready to pay attention and participate.

Reading Quizzes (10%): You are required to read all assigned readings before coming to class so that you can participate in class discussions and activities. Reading quizzes may be given at any time to ensure that you are keeping up on the reading assignments. You will not be allowed to use the readings on the quizzes, but you are allowed to use any notes you have taken about the readings. It will not be possible to make-up these points if you miss class or come to class unprepared. You will be allowed to drop your lowest quiz score.

Discussion Leader (5%): At least once during the quarter you will be asked to lead a discussion based on one or more of the selected readings. You will need to develop discussion questions ahead of time, print them out for your group members, and lead your small-group discussion. You will be graded on the quality of your questions (how well do they make people think and talk about the subject matter?), your preparedness for the discussion, and your ability to guide the discussion.

Fire Write-Up (5%): Once during the quarter you will be asked to find an article in the news that discusses fire. The article should be long enough that you are able to answer questions such as: What is the major point of the article? Where is the story set? How does it pertain to issues we have discussed in class? Oftentimes brief newspaper articles are not long enough to complete the assignment, so I encourage you to use other popular media sources like National Geographic, the New York Times Magazine, High Country News, etc. More specific instructions will be posted on Blackboard and the assignment is due no later than November 1st. 10% of your grade will be subtracted for every day the assignment is late (including weekends).

Research Paper (20%): You will be required to complete a research paper worth 20% of your final grade. The papers are due Tuesday November 26th by 5 pm. **No late papers will be accepted!** Your paper will be both uploaded to Blackboard via SafeAssign (to check for plagiarism) and printed out and handed in (please place a hard copy in my mailbox in the Geography Department office). The papers are to be 9-10 pages, typed, 12 pt times new roman font, double spaced, 1" margins. All sources must be scientific (I will give more directions about this later) and you must use at least 12 different sources. You must use in-line citations and attach a bibliography with your paper (I don't care what style you use, as long as you are consistent throughout). The paper topic is your choice, but it must in some way address fire and its impacts on something or relationship to something. This is a very broad topic (I did this on purpose!). I am requiring that everyone meet with me during the second week of school to discuss paper topics. I will set up appointment times with everyone during the first week of class.

Here is a partial list of possible topics just to get your brain going in the right direction:

- The role of fire in our national parks (pick one, like Rocky Mountain NP, Olympic NP, Yosemite NP, etc.)
- Interactions between fire and invasive species
- Fire and its use in/impact on global agriculture
- The role of fire in the development and perpetuation of grasslands
- Animal mortality/habitat destruction following fire
- The impact of fire-induced soil erosion on landslides
- The changing economics of fire (fighting it, insurance rates, building practices, etc.)
- A cultural perspective of human use of fire
- Environmental issues of salvage logging after fire

Your paper topic should be as specific as possible (pick a geographic location) and should be carefully organized to tell a simple, well-researched story. I will give out additional instructions regarding the style and organization of the paper.

Field Trip (5%): Lastly, there will be one mandatory all-day field trip on a Saturday October 12th. You will be required to attend and take notes in the field. Following the field trip you will also complete a write-up reinforcing what we saw in the field.

Policies: You will need to arrive to class on time and leave only when dismissed. Please do not arrive or leave in the middle of lecture. It is distracting for many people, including myself. When in class you are expected to pay attention (please do not engage in unrelated conversations) and participate in all activities and discussions. Cell phones and other communication devices should be turned OFF during class. Anyone talking on the phone, texting, surfing the web, or emailing during class will be asked to leave and will automatically lose all attendance/discussion points for the day. Please be respectful of your fellow students and instructor by following these rules.

Cheating or any other academic misconduct/dishonesty will **NOT BE TOLERATED**. Examples of these behaviors include (but are not limited to):

- Plagiarism (passing off the work of another as that of your own)

- Copying answers from your neighbors during exams/activities or using a “cheat sheet”
- Dishonesty concerning reasons for absence from class or your presence in class
- Any other actions that might give you an unfair advantage over your classmates

All cases of academic dishonesty/misconduct will be treated very seriously. The penalties for engaging in academic dishonesty and/or misconduct can range from a grade of “F” for an assignment/exam to an automatic failure of the course. Please consult the university policy at <http://www.cwu.edu/~saem/index.php?page=student-conduct-code> if you have additional questions/concerns regarding academic dishonesty or CWU’s Student Conduct Code.

Students with disabilities who require academic adjustments in this class are encouraged to meet with me during my office hours to discuss their disability-related needs. Please bring a copy of your Confirmation of Eligibility for Academic Adjustments (or email it to me) and your current class schedule to this meeting. If you are unable to meet during office hours due to class schedule conflicts, please call me at 963-3699 or email me at WalshMe@cwu.edu to schedule an appointment. Students with disabilities who have not registered with the Center for Disability Services are not eligible to receive accommodations/academic adjustments. Please contact the CDS for additional information. Contact info: Center for Disability Services, Boullion room 205, phone: 963- 2171, email: dahlberc@cwu.edu website: <http://www.cwu.edu/~dss/cms/>

Additional resources: Other useful links can be found at <http://www.cwu.edu/~acadadv/programs.php> and <http://www.cwu.edu/~acadadv/>

If you have any questions or concerns throughout the quarter, please email me or come see me! Don’t wait until the end of the quarter to voice your concerns. I am here to help you get the most out of this course, so please let me know how I can help.

Note: I consider this syllabus a contract between myself and the students in this course. In writing this syllabus, I have obligated myself to follow the policies and procedures contained herein. By being a student in this course, you are responsible for understanding and following these policies as well. I reserve the right to make changes to this syllabus. You will receive verbal and written notification of major changes to course policies, procedures and content.

Schedule, Lecture/Discussion Topics, Reading Assignments, and Assignment Due Dates:

Date Day Lecture/Discussion Topic

Week 0-

9/25 W **Lecture 1:** Introduction to Pyrogeography/Fire Basics
Readings: *Fire Ecology of PNW Forests* (Agee, 1993)-Ch.1

Week 1-

9/30 M **Lecture 2:** Fire Ecology and Behavior
Readings: *Fire Ecology of PNW Forests* (Agee, 1993)-Ch. 2

10/2 W **Discussion 1:** Fire Ecology and Behavior
Readings: Vegetation and weather explain crown damage (Thompson and Spies, 2009); Human and biophysical influences on fire occurrence (Hawbaker et al., 2013)

Week 2-

10/7 M **Lecture 3:** Fire’s Effects (air, water, soil, flora, fauna)
Readings: *Fire Ecology of PNW Forests* (Agee, 1993)-Ch. 5 and 6

10/9 W **Discussion 2:** Fire’s Effects on Forests in the Western US
Readings: Twenty years after the 1988 Yellowstone Fires (Romme et al., 2011)
Guest Speaker: Judy Hallisey (USFS)- “Fire effects to watersheds and the aftermath”

10/12 **Mandatory Field Trip (8:30-4:30pm)**

Week 3-

10/14 M **Lecture 4:** The Origin of Fire on Earth/Fire-History Methods
Readings: *Fire Ecology of PNW Forests* (Agee, 1993)-Ch. 4 excerpt; Holocene Fire Activity (Whitlock and Bartlein, 2004)

10/16 W No class (Faculty Development Day)

10/18 F **Paper topics due by 5pm (submit via Blackboard)**

Week 4-		
10/21	M	Discussion 3: The Origin of Fire on Earth/Fire-History Methods <u>Readings:</u> Fire in the Earth system (Bowman et al., 2009); Fire history in western Patagonia (Holz et al., 2012)
10/23	W	Lecture 5: Human Use of Fire <u>Readings:</u> <i>World Fire</i> (Pyne, 1995)- Firestick History and Consumed by Either Fire or Fire
Week 5-		
10/28	M	Discussion 4: Human Use of Fire <u>Readings:</u> An ecological and historical review of bracken (McGlone et al., 2005); Native Americans as active and passive promoters of trees (Abrams and Nowacki, 2008); Indian, Fire and Land in the Pacific Northwest (Boyd, 1999)-Strategies of Indian Burning in the Willamette Valley
10/30	W	Exam 1
11/1	F	<u>Research paper bibliography due by 5pm (submit via Blackboard)</u>
Week 6-		
11/4	M	Lecture 6: Fire History in the US <u>Readings:</u> <i>Tending Fire</i> (Pyne, 2004)- America's Narrative
11/6	W	Discussion 5: Fire History in the US <u>Readings:</u> Regional synchronicity in fire regimes (Weisberg and Swanson, 2003); Southerners who set the woods on fire (Kerr, 1958) Guest Speaker: Dr. Robert Kuhlken (Geography Department)-"Global arson"
Week 7-		
11/11	M	No class (Veteran's Day)
11/13	W	Lecture 7: Fire Management in the US <u>Readings:</u> <i>Tending Fire</i> (Pyne, 2004)- Seeing Meaning in the Flames and Torch and Shovel
Week 8-		
11/18	M	Discussion 6: Fire Management in the US <u>Readings:</u> Reintroducing Indian-type fire (Williams, 2000); Potential for future development on fire-prone lands (Gude et al., 2008); Fuel treatments at the wildland-urban interface (Winter et al., 2002)
11/20	W	Lecture 8: Fire and Invasive Species <u>Readings:</u> Plant invasions and fire regimes (Brooks, 2008)
Week 9-		
11/25	M	Graduate Student Presentations Discussion 7: Fire and Invasive Species <u>Readings:</u> Woody exotic plant invasions and fire (Mandle et al., 2011); Fire and invasive plants on California landscapes (Keeley et al., 2011)
11/26	T	<u>Research papers due by 5pm (submit via SafeAssign in Blackboard and put a hard copy in my mailbox)</u>
11/27	W	No Class (Thanksgiving Break)
Week 10-		
12/2	M	Lecture 10: Fire and Global Climate Change <u>Readings:</u> <i>World Fire</i> (Pyne, 1995)-Global Fire Discussion 8: Fire and Global Climate Change <u>Readings:</u> Biomass burning, humans and climate change in SE Asia (Taylor, 2010); Warming and earlier spring increase wildfire (Westerling et al., 2006)
12/4	W	Exam 2