

Sample Syllabus and Schedule

REM 407: GIS Applications in Fire Ecology and Management, 2 credits

Course Overview

This online class is designed to give you an in-depth understanding of how geographical information systems are applied in fire ecology management. You will be introduced to GIS applications in fire ecology, research, and management including incident mapping and fire progression mapping. You will apply GIS overlay analysis, remote sensing fire severity assessments, fire atlas analysis, and explore the role of GIS in the Fire Regime Condition Class concept and the National Fire Plan. Prerequisites: FOR 375 or GEOG 385, or Permission

Learning Outcomes

- Become familiar with GIS, GPS and remote sensing and how these are used in fire incident mapping.
- Expand understanding of how GIS databases are structured for vector and raster data including database query
- Use GIS overlay analysis to understand the occurrence of fire in relation to topography and vegetation
- Explain the structure of fire-atlas data, historic and present fire patterns and limitations in GIS fire-atlas data.
- Explore the advantages and limitations of remote sensing applications and apply these layers to GIS analysis
- Comprehend succession-disturbance dynamics demonstrated with the Vegetation Dynamics Development Tool (VDDT) and the role of GIS in spatially explicit landscape dynamics modeling
- Explain how fire behavior and fire effects models can be used for assessments and how results from management alternatives are included in planning documents.
- Evaluate the role of GIS in Fire Regime Condition Class (FRCC) estimates, advantages and limitations.
- Become familiar with multiple sources of spatial data layers including the LANDFIRE web site
- Apply GIS tools and data sources to an independent project

Instructor:

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Required Books and Articles

There are no required textbooks for this course. Please see each lesson for the assigned articles.

Grading:

Assignments	Points
Assignments/Quizzes (8 labs each worth 80 pts)	640
Discussions	60
Final Project: Proposal (50) - Presentation (250)	300
TOTAL POINTS	1000
<i>extra credit</i>	20

***Late work will be marked off 10% of the total grade for everyday it is late, unless the student has previously arranged with the instructor to turn in the assignment late. A previous arrangement must be made more than 24 hours before the due date unless a medical emergency or unexpected work conflict has occurred. No other excuses will be accepted and due dates will be strictly enforced. Any medical emergencies must be accompanied by a doctors note on official letterhead. **

Grades will be based on the total number of points received in this class:

A = 900-1000

B = 800-899

C = 700-799

D = 600-699

F < 600

Assignments:

You will be given eight assignments which require hands on use of GIS and literature readings. The assignments generally consist of answers to database query, maps or tables created in the lab exercises and a short writing assignment.

All assignments must be done independently and you must turn in your own maps.

Discussions

You are responsible to participate in 3 discussions throughout the semester. You will be required to post either a question pertaining to the lesson or an article, broader question, or pertinent material that you found in conjunction with the lesson. Your 3 independent comments (worth 3%), as well as participation or responses to **at least 6** discussions (3%) initiated by your classmates.

Please do not load them all into the first or last lesson. You will be graded on your participation in the class throughout.

Final Project

Throughout this course you are introduced to examples of how GIS can be used to solve problems and answer questions in natural resource applications, in fire ecology and management in particular. The final project will give you an opportunity to apply what you have learned in this class to a GIS analysis application of your own choice using self-selected data or class data.

You will be required to submit a project proposal halfway through the semester to begin thinking about your project and your potential data sources.

The project will be submitted in the form of a PowerPoint presentation that would take approximately 15 minutes to present (~15 slides). Since you will not be able to present your work to the class in person you will type the text in the Notes Section or record your presentation using the recording ability of PowerPoint.

Extra Credit

ArcGIS can be a frustrating and befuddling program for any beginner users, thus it is important to ask questions and help each other out by answering if you know possible solutions.

For participating in multiple lab question discussions, especially answering questions correctly and being involved consistently throughout the semester, you can earn up to 2% extra credit.

Academic Dishonesty and Plagiarism

Academic Dishonesty of any form is unacceptable and will be taken seriously by the instructor, the College of Natural Resources, and the University of Idaho. This includes plagiarism, when you copy materials from other sources without citing the source or copy someone else's work, and cheating, copying material from other students during tests or quizzes. In both cases, you will fail the assignment/exam and the information will be passed on to the Dean of Students. For more information on College and University guidelines see:

- [Policy on Plagiarism](#)
- [Student Code of Conduct](#)

Accommodations for Disabilities

Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodations needed for the course. Late notification may mean that requested accommodations might not be available. All accommodations must be approved through [Disability Support Services](#) located in the **Idaho**

Commons Building, Rm. 333, 208-885-7200, dss@uidaho.edu.

Example Schedule:

Lesson 1 – Spatial Technology and Data Sources, Jan 15-21

Readings

- Gollberg et al. (2001)

Assignments

- **DUE Jan 21 - Lab 1 Assignment**

Lesson 2 – Overlay Analysis, Jan 22-28

Readings

- No Readings

Assignments

- **DUE Jan 28 - Lab 2 Assignment**

Lesson 3 – Fire Atlas Data, Jan 29-Feb 4

Readings

- Rollins et al. (2001)

Assignments

- **DUE Feb 4 - Lab 3 Assignment**

Lesson 4 – LANDFIRE Data

Readings

- Keane et al. (2001)

Assignments

- DUE Feb 11 - Lab 4a Assignment
- DUE Feb 11 - Lab 4b Assignment

Lesson 5 – Assessment of Fire Behavior & Effects, Feb 12-18

Readings

- Wildland Fire Assessment Tool User's Guide (Ch 3-4)

Assignments

- DUE Feb 18 - Lab 5 Assignment

Lesson 6 – Remote Sensing & Fire Severity, Feb 19-25

Readings

- Key et al. (2006)

Assignments

- DUE Feb 25 - Lab 6a Assignment
- DUE Feb 25 - Lab 6b Assignment

Lesson 7 – Landscape Dynamics & VDDT, Feb 26-Mar 4

Readings

- Roth et al. (2011)

Assignments

- DUE Mar 4 - Lab 7 Assignment

Lesson 8 – Fire Regime Condition Class, Mar 4-25

Readings

- Hann et al. (2001)

Assignments

- DUE Mar 25 - Lab 8 Assignment

Lesson 9 – Final Project, Mar 26- Apr 11

Assignments

- DUE Mar 11 - Proposal for Final Project
- DUE Apr 11 - Presentation for Final Project