

Amy E. Hessler
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Geography 407: Environmental Field Geography **Fall 2006, 3 Credits**

Time: Thursdays 2:30 – 5:20 pm (we may return later than 5:30pm!!)

Location: 111 White Hall (departing to field locations)

We will usually meet in 112 White Hall first, but throughout the semester we may leave for the field or the computer lab (check the schedule). We will be using departmental vans for transportation so you do not need a car. However you will need to *arrive in 112 White Hall promptly at 2:30!!!*

Dr. Hessler's office hours: Thurs. 1:00-2:00pm

Prerequisites: Geog. 107 (Physical geography) or Geog. 307 (Biogeography)

Course Objectives:

1. Develop practical skills in fieldwork using a variety of data collection and analysis techniques including: tree-ring dating and analysis, plant identification using a dichotomous key, establishing plots and transects, performing tree surveys, data entry, graphical and statistical analysis.
2. Learn how to work as part of a team in an outdoor setting and in writing a manuscript. This will involve patience, communication, cooperation, leadership and good judgment.

Expected Learning Outcomes:

1. Students will learn basic methods in field geography such as sampling design, species identification, landform classification and basic soil characterization.
2. Students will learn to work independently and as a group in an outdoor setting.
3. Upon completion of this course, students will be able to a) design a field based study, b) collect field data, c) organize and analyze field data and d) be able to interpret and summarize results in a formal scientific format.

Course Requirements:

Attendance:

Attendance is required. Students may miss one class meeting, however each additional absence will reduce the student's grade by one letter grade.

Participation:

This is a hands-on course that requires active participation. 30% of your grade will be derived from participation including:

- a) Verbal participation. This includes questions, suggestions, comments, and ideas. It also includes good communication skills, patience with your classmates and leadership.

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- b) Active participation. This involves actually doing things in the field and in the lab (setting up plots, running transects, identifying trees, entering data, and helping other students). Active participation also involves leadership skills, cooperation, helping classmates and good judgement.

Your participation grade will be assigned by both your peers (15%) and your instructor (15%). See table below.

Assignments:

The course is designed around a single final project co-authored by all the students in the class. Though this will be a group effort, each student will be graded on both an individual contribution and a group contribution. As the course proceeds, each student will be assigned an individual written contribution (one or more of the following: abstract, introduction, study area, methods, results, discussion, conclusions and citations). Grading of this individual written contribution will be performed by the student (25%), the student’s peers (15%) and the instructor (60%). The student, the student’s peers and the instructor will all use the attached “grading rubric” to assign grades. The peer grade will be derived from a mean of all the peer evaluations for each student.

Every student will also submit summaries of topical research articles on a weekly basis. These weekly assignments will be graded by the instructor and will contribute to the student’s participation grade. Grading (including participation) will be determined as follows:

Task	Percent	Total
Article summaries (10)		10%
Tree ID quiz		5%
Field Notebook		5%
Individual written contribution (instructor grade)	15%	
Individual written contribution (self-assigned grade)	15%	
		30%
Individual participation (peer grade)	15%	
Individual participation (instructor grade)	15%	
		30%
Group project grade (instructor grade for whole class)		20%
Total Grade		100%

Letter Grade	Total Percentage
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	<60%

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Assignments:

Weekly article summaries (homework)
Field notebook (participation)
Data entry and quality control (participation)
Individual written contribution outline (individual written)
Individual written contribution 1st draft (individual written)
Individual written contribution 2nd draft (individual written)
Final project (group grade)

Texts We Will Use:

Brooks, A.B. 1976. **Trees of West Virginia**. McClain Printing Company. (I have copies)
Clovis, J.F. 1977. **The Woody Plants of the Core Arboretum, West Virginia University**. McClain Printing Company, Parsons, West Virginia.
Harrington, H.D. and Durrell, L.W. 1997. **How to Identify Plants**. Ohio University Press. (Purchase at bookstore)
Stokes, M. and T. Smiley. 1996. **An Introduction to Tree Ring Dating**. The University of Arizona Press, Tucson, Arizona. (On hardcopy reserve at downtown library).

Every week, students are responsible for identifying, copying and summarizing scientific papers that will support their individual writing contribution. The first three papers were found for you and are on electronic reserve at the WVU libraries website (see below: Reserve Instructions).

Runkle, J. 1996. Central mesophytic forests. In: M. B. Davis ed., Eastern Old-Growth Forests. Island Press, Washington DC. Pp. 161-177.
Martin, W. 1995. Characteristics of old growth mixed-mesophytic forests. *Natural Areas Journal* 12:127-135.
Parker, G. 1989. Old growth forests of the central hardwood region. *Natural Areas Journal* 9:5-11.

Reserve Instructions:

Some articles and books are on reserve for you at the downtown library. Articles can be viewed via electronic reserve (<http://ereserves.lib.wvu.edu/>). Use the following login and password:

Login: Hessel
Password: 738

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Social Justice Statement

West Virginia is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class. Please advise me and make appropriate arrangement with Disability Services (293-6700).

Plagiarism

According to the Undergraduate Catalog, "West Virginia University expects that every member of its academic community shares the historic and traditional commitment to honesty, integrity, and the search for truth" (p. 49). I strongly agree with this statement and pledge that plagiarism will not be tolerated in this course. **Plagiarism** is defined as "To take or pass off as one's own the ideas, writings, artistic products, etc. of someone else; for example, submitting, without appropriate acknowledgment, a report, notebook, speech, outline theme, thesis, dissertation, or other written, visual, or oral material that has been knowingly obtained or copied in whole or in part, from the work of others, whether such source is published, including (but not limited to) another individual's academic composition, compilation, or other product, or commercially prepared paper" (p. 49). The work of others includes the work of your peers as well as printed and digital (i.e. Web-based) material.

I consider plagiarism to include 5 or more words of the original author used in sequence without citation of the original source. If 5 or more words must be used in sequence, use quotation marks and citation. However in scientific writing, it is better to summarize in your own words and use citations.

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Schedule

Date	Topic	Location	Assignments/Due date
8/24	What is old growth? Introductions/pyramid	111 White Field Site	Article summary: Runkle 1996
8/31	Intro to the study site What is a dichotomous key?	111 White Field Site	Article summary: Martin 1992
9/7	What is dendrochronology? Learning to ID plants	111 White Field Site	Article summary: Parker 1989 Ultimate Tree Ring Web Page
9/14	How do we measure the natural world? Study Design, Plot location	111 White Field Site	Article summary Field notebook due
9/21	Data collection	111 White Field Site	Stokes and Smiley pgs. 3-20 Article summary
9/28	Data collection	111 White Field Site	Assign individual writing tasks Article summary
10/5	Data collection	111 White Field Site	Stokes and Smiley pgs. 29-36 Article summary
10/12	Dendro lab methods (Hessler in San Diego)	206 White	Stokes and Smiley pgs. 37-46 Article summary
10/19	Dendro lab methods Data entry and quality control	206 White	Article summary Data entry complete
10/26	What does it mean? Data Exploration	111 White	Article summary Outline individual writing tasks
11/2	How do we summarize data? Data Analysis	111 White	Article summary
11/9	Data Analysis	111 White	Article summary
11/16	Interpretation	111 White	1 st draft due Article summary
11/23	Thanksgiving Break	111 White	
12/30	Writing workshop	111 White	2 nd draft due
12/7	Final assignment due	111 White	Final assignment due

This schedule is definitely subject to change!!! Students are responsible for changes announced in class.

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Article Summaries: Literature on Old Growth

1 page, double-spaced maximum

Grade will be either: 0 (not turned in), 1, 2, or 3 points

In order to assist students working on the introduction and discussion sections, every week from now through Nov. 18 you are each responsible for finding and summarizing one article old growth that is closely related to our study. Your summary **must** consist of the following information:

1) Citation using the following format:

Articles:

Martin, W. 1995. Characteristics of old growth mixed-mesophytic forests. *Natural Areas Journal* 12:127-135.

Books:

Runkle, J. 1996. Central mesophytic forests. In: M. B. Davis ed., *Eastern Old-Growth Forests*. Island Press, Washington DC. Pp. 161-177.

For other citation formats (for book chapters, etc.), check the literature cited section of an article published in *Ecology*.

2) Brief summary of the article, including:

Research questions or hypotheses

Methods used

Results

3) Brief description of how this paper is relevant to our study. This may relate to the methods, the results or the discussion. Please be specific.

I recommend articles from the following journals:

Natural Areas Journal

Journal of Ecology

Journal of Biogeography

BioScience

Ecology

Nature

Ecological Applications

Science

Ecological Monographs

The first three papers were found for you and are on electronic reserve (see above: Reserve Instructions).

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Article Summary Example:

Clark, J.S., C. Fastie, G. Hurtt, S.T. Jackson, C. Johnson, G.A. King, M. Lewis, J. Lynch, S. Pacala, C. Prentice, E.W. Schupp, T. Webb, and P. Wyckoff. 1998. Reid's paradox of rapid plant migration: dispersal theory and interpretation of paleoecological records. *Bioscience* 48(1):13-22.

Reid's Paradox refers to the idea that the rapid rate of expansion of plant populations succeeding glacial recessions due to climate change does not correlate with general knowledge of dispersal distances and mechanisms that plants possess. However, new research techniques are converging to allow a greater understanding of the contribution of dispersal to species range expansion. Dispersal theory has changed greatly since its inception from the diffusion model based on a Gaussian distribution of seeds, to a leptokurtic dispersal kernel that accounts for long-distance dispersal events, which may greatly impact a species' spread by the formation of nascent foci of reproductive individuals. The possible vectors of these long distance events range from bird species to large mammals, or a combination of the two, but it must be noted that despite a seed's relocation, successful establishment is not always the final result. This information may therefore distort a link between dispersal theory and Holocene plant migrations. The question remains as to how tree populations migrated so far, so quickly, and whether the same thing may happen in an anticipated era of climate change. A junction of 'forward' modeling approaches, which predict migration based on life history and dispersal data, with 'inverse' approaches, which start with an observed pattern of spread and evaluate the compatibility of life history traits and dispersal ability with that pattern, may provide useful information to interpret past migrations as well as future spread. This article is biogeographic in nature because it deals with changing geographic distributions of trees.

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Grading Rubric for Final Project:

Name: _____ Topic: _____

Ratings:

	Low				High
1. Geographic perspective	1	2	3	4	5
2. Statement of problem/thesis	1	2	3	4	5
3. Depth of analysis/argument	1	2	3	4	5
4. Balance of analysis/argument	1	2	3	4	5
5. Originality	1	2	3	4	5
6. Abstract	1	2	3	4	5
7. Introduction	1	2	3	4	5
8. Conclusion	1	2	3	4	5
9. Organization	1	2	3	4	5
10. Flow of ideas	1	2	3	4	5
11. Amount/use of authoritative literature/citations	1	2	3	4	5
12. Quality of data/evidence	1	2	3	4	5
13. Amount of data/evidence	1	2	3	4	5
14. Data interpretation	1	2	3	4	5
15. Maps, tables, figures (where appropriate)	1	2	3	4	5
16. Mechanics: spelling, punctuation, grammar etc.	1	2	3	4	5
17. Writing style, use of language	1	2	3	4	5
18. Presentation: title, subheads, pagination, appearance, assigned length	1	2	3	4	5
19. Crediting sources: in text references	1	2	3	4	5
20. List of references	1	2	3	4	5

Maximum Points = 100

Points: _____

Other Comments:

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What to Wear/Bring in the Field

Clothing: You will want to wear **long pants, long sleeved shirt** and a hat if you are sun sensitive. Hiking boots or work boots are preferable to tennis shoes, but be sure whatever you wear is comfortable.

Bring:

Water (at least 1 liter)

Food (snacks can get you through anything)

Rain jacket

Insect repellent

Pencils, pens, notebook

Small backpack (you will be asked to carry field equipment)

Eye drops if you wear contacts

Toilet paper

Plastic bag for carrying out said toilet paper

There is no bathroom near our study site so I have copied the Leave No Trace protocols from NOLS (National Outdoor Leadership School):

- ***Dispose of Waste Properly***
 - ***Pack it in, pack it out. Inspect your campsite (field site) and rest areas for trash or spilled foods. Pack out all trash, leftover food, and litter.***
 - ***Deposit solid human waste in catholes dug 6 to 8 inches deep at least 200 feet from water, camp, and trails. Cover and disguise the cathole when finished.***
 - ***Pack out toilet paper and hygiene products.***