Fall 9-1-2000

FOR 330.01: Forest Ecology

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Instructor: Paul Alaback (Science Complex 404) email: palaback@forestry.umt.edu; ph. 243-2913
Lectures: Tuesday and Thursday 11:10 - 12:00 J304
Labs: Mon, Tues, Weds or Thurs. 1:10pm - 5:00 pm; CP 102 or For 106
Office Hours: M, W 9:00-11:00, or email for appointment
Teaching Assistants: LaDonna Carlisle SC 460 243-6657
Victoria Yazzie-Durglo SC 401 ph 243-5326

Note: Extra readings will be placed on reserve in the library.

General course objectives:
1. Provide overview of forest ecology with particular emphasis on interdisciplinary ecosystem perspectives.
2. Develop skills in field observation and methods, analysis, data interpretation and presentation.
3. Provide synthesis of information from basic biology, soils, microclimate, and plant ecology as a foundation for forest conservation and management in general, and in better understanding scientific basis for current environmental issues and policy debates.

| Schedule |
|---------|----------------|----------------|
| **Topic** | **Readings** | **Dates** |
| Part I. Forest Communities | | |
| Introduction to course | CH1 | 9/5 |
| The ecosystem concept | (Kimmins, 1987) | 9/7 |
| Concepts of vegetation classification | CH 13 | 9/12 |
| Historical ecology | CH 3 | 9/14 |
| Biodiversity | CH 20 | 9/19 |
| Community composition | CH 15 | 9/21 |
| Community structure | (Franklin & Spies, 1991) | 9/26 |
| Disturbance ecology | CH 16 (Connell & Slatyer, 1977) | 9/28 |
| Disturbance ecology | | 10/3 |
| Plant successions | CH 17; (Alaback, 1982) | 10/5 |
| First midterm exam | | 10/10 |

Part II. Forest trees and populations

<p>| Adaptation and evolution: genetic aspects of ecosystems CH 4 | 10/12 |
| Population genetics | 10/17 |
| Population biology introduction | Barbour Ch 4; CH 5 | 10/19 |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Readings</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Population biology models</td>
<td></td>
<td>10/24</td>
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<tr>
<td>Population biology applications</td>
<td>(Tappeiner &amp; Alaback, 1989)</td>
<td>10/26</td>
</tr>
<tr>
<td>Saturday field trip</td>
<td>Fac-Pack</td>
<td>10/14; 10/21</td>
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<tr>
<td>Competition</td>
<td>(Grime, 1974)</td>
<td>10/31</td>
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</tbody>
</table>

**Part III. Ecosystem dynamics and the physical environment**

Soil: the least renewable component of the ecosystem

I. Key factors influencing plants
   CH 11

ELECTION DAY HOLIDAY VOTE!
   11/7

Soils II. Ecological responses to soils
   11/9

SECOND M ID TERM EXAM
   11/14

Productivity I
   CH 13
   11/16

Productivity II
   CH 18
   11/21

THANKSGIVING HOLIDAY
   11/22

Productivity III
   11/28

Biogeochemical cycling
   CH 19
   11/30

Biogeochemical cycling
   12/5

Climatic processes: basic patterns
   CH 9
   12/7

Climatic processes: ecological responses
   CH 7; (Stephenson, 1990)
   12/12

Synthesis
   CH 21
   12/14

**Final Exam: Wednesday**

December 18th, 10:10 am

Note: Graduate students will also be required to write term paper. Please submit topic by September 25th. Due Nov. 9th (in lecture). Background info available on internet (library ERES) and from TA's.

**Readings from Library**


Tappeiner, J. C. I., & Alaback, P. B. (1989). Early establishment and vegetative growth of

Polices and Procedures

Semester Grading Policy: Final grades will be a composite of lecture and laboratory grades. No “extra credit” is available.

Exams and Assignments: Your grade in the lecture part of For 330 will be based upon 3 exams (each worth 100 points), and 8 class assignments (worth 10–15 points). Assignments and exams are spaced throughout the semester. Exams will cover material from lecture, labs, discussions, and assigned readings. Questions will include multiple choice, essay and short answer. Final Exam will be comprehensive for 50% and the rest will emphasize material since the second midterm.

Make-up exams: In order to make up an exam, you must be involved in a recognized University activity or supply written verification of illness from a doctor. In the case of University activities, arrangements must be made with Dr. Alaback PRIOR to the anticipated absence. Approved make-up exams will ONLY be given once. See the schedule below and note that they will be held in SC 403 from 7:00 - 8:00 am (a time when there is no danger that they will conflict with your other classes).

NOTE: Do not schedule travel that conflicts with exams or labs which occur near Thanksgiving break or prior to finals week. Make-up exams will not be approved because of schedule conflicts due to holiday travel plans (as per University policy!)

<table>
<thead>
<tr>
<th>Exam #</th>
<th>Scheduled Exam Dates</th>
<th>Make-up Exams</th>
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<tbody>
<tr>
<td>1</td>
<td>Tues Oct 10</td>
<td>Monday Oct 16</td>
</tr>
<tr>
<td>2</td>
<td>Tues Nov 14</td>
<td>Monday Nov 26</td>
</tr>
<tr>
<td>3</td>
<td>Mon Dec 18 (FINAL)</td>
<td>NONE</td>
</tr>
</tbody>
</table>

Getting Your Exams and Assignments Back: Exams and assignments will be returned during your laboratory by the TA. You may also pick up exams from TA’s during their office hours. Answer keys will be available on the internet (library ERES system) as soon as possible following the exams. Students will have ONE WEEK ONLY following the posting of the exam to bring incorrectly corrected questions to the attention of the appropriate lecture instructor. You may do this after class, during office hours, or by attaching a note explaining the grading problem and sending it campus mail to Paul Alaback/School of Forestry, or you can leave with receptionist in main forestry office (Forestry building 1st floor) to send in campus mail. After one week, all scores are final.
Final Grades:

The following grading scheme will help you chart your progress during the semester.

<table>
<thead>
<tr>
<th>Percentage</th>
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<tr>
<td>&gt; 90%</td>
<td>A</td>
</tr>
<tr>
<td>&gt; 80 %</td>
<td>B</td>
</tr>
<tr>
<td>&gt; 70 %</td>
<td>C</td>
</tr>
<tr>
<td>&gt; 60 %</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 59 %</td>
<td>F</td>
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</tbody>
</table>

Please keep track of all of your own scores during the semester for both lecture and laboratory assignments and exams on the score sheet provided in the lab handbook.

Format for all Written Assignments
Please note that **NO LATE ASSIGNMENTS WILL BE ACCEPTED**. All written assignments submitted for a grade must be word processed or typed, double spaced, and a font no smaller that 10 point. Naturally we expect work of high professional quality that has been carefully edited for spelling and grammatical errors prior to submission. Use ONE INCH MARGINS on all sides, 1 _ or double spaced, and do not use any kind of folder or binder.

For ALL written assignments, place your name, lab section and TA, Course Number and date in the upper left hand corner. Staple your work BEFORE turning it in. For all group projects, list the name of group members and your project title. The ACADEMIC ASSISTANCE PROGRAM at The University of Montana provides excellent tutoring services if you wish to have your written papers critiqued prior to submission.

Readings: Please complete readings BEFORE scheduled class meetings! The text and the laboratory handbook are available for purchase in the UC Bookstore and Kinko's respectfully.

Optional Purchase for the lab (both available at bookstore):
Forest Habitat Types of Montana, Pfister et al. 1977. Provides general background information on forest communities in Montana, including species that occur, climate, and relationships to productivity, and full detail on the plant habitat typing vegetation classification system that we will be using.
Plants of the Rocky Mountains, Kershaw, MacKinnon and Pojar. 1998. One of the best available references on all the plants that occur in western Montana, including information on identification, distribution, ecology, human uses, etc.

Laboratories
Activities in the labs will focus on learning scientific techniques and **doing science**. Some labs will involve working through demonstrations, or learning field techniques, while others will focus on open-ended investigations designed by students. Group and cooperative learning will be emphasized. Lab grades will be based on completion of in-class investigations, assignments, and an independent group research project. Students will receive up to 5 points per week for attending lab and being prepared for scheduled lab activities. Other assignments relate to the specific content and activities of the lab.

Format for Ecology Laboratory Write-Ups: Lab write-ups should address thoroughly the questions provided, or detail the results of your lab research. For formal lab write-ups (e.g. the final project), you will be provided with an example.