SYLLABUS
FOR 466W: Forest Resources Management – Spring 2004

Lecture: 11 Ferguson, 9:05 - 9:55 am, Tuesday and Thursday
Lab: 105 Ferguson, 12:20 - 2:15 pm (Sec 1) and 5:40-7:30 pm (Sec 2), Wednesday
Web Site: http://www.courses.psu.edu/for/for466w_mem14/

Dr. Marc E. McDill
214B Ferguson Building
865-1602; mem14@psu.edu

Dr. McDill’s Office Hours: Monday through Friday, 10:00 am - noon, or by appointment.

Course Description: The class covers the most fundamental decisions forest managers make in managing forests for timber production, including stand and forest-level decisions. The most fundamental stand-level decision for even-aged stands is deciding when the stand should be harvested. Regeneration and thinning decisions also are important. Uneven-aged management decisions include identifying a target diameter class distribution and selecting a cutting cycle. Forest-level decisions include determining the harvest level, specific areas to be harvested over time, and how much and what areas to allocate to special management areas such as extended rotation areas, aesthetic buffers, stream-side management zones, and wildlife areas. The course emphasizes basic tools used in making these decisions, including financial analysis at the stand level and linear programming at the forest level.

Course Objectives: By the end of the course all students should be able to:
1. apply financial analysis to evaluate typical stand-level management decisions;
2. calculate the value of a forested property based on expected revenues from timber production;
3. calculate and explain the meaning and application of measures such as land expectation value, forest value, and long-term sustained yield for forested properties;
4. develop a forest management plan for a small or large property; and
5. have improved problem solving, written and oral communication and computer skills.

Textbook: The textbook consists of draft chapters of a textbook written by Dr. McDill. Chapters will be made available on the course web page as the class progresses. All chapters will be available as Adobe Acrobat files, which you can view on-screen or print. Some chapters will also be available as interactive web pages.

Grading:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percent</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Study Questions</td>
<td>8%</td>
<td>80</td>
</tr>
<tr>
<td>Problem Sets (6)</td>
<td>18%</td>
<td>180</td>
</tr>
<tr>
<td>Labs (10)</td>
<td>10%</td>
<td>100</td>
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<tr>
<td>Writing Assignments (2)</td>
<td>7%</td>
<td>70</td>
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<tr>
<td>Management Plan</td>
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<td>140</td>
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<tr>
<td>Midterm Exams (2)</td>
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<td>280</td>
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<tr>
<td>Final Exam</td>
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<td>150</td>
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<tr>
<td>TOTAL</td>
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<td>1,000</td>
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Course Policies:

- **Grading Scale for Undergraduates**: For undergraduate students, 900 points will guarantee an A, 800 points will guarantee a B, and so on. Cut-off points may be lowered by a small amount but will not be raised.

- **Grading Scale for Graduate Students**: For graduate students, 920 points will guarantee an A, 840 points will guarantee a B, and so on. Grading of graduate students’ assignments, tests and management plans will be stricter than for undergraduates.

- **Exams**: Exams will include a combination of quantitative and qualitative questions. Quantitative questions will be very similar to the exercises at the back of each chapter and the problems done in the homework assignments. The qualitative questions will be similar to the study questions at the back of each chapter, some of which will be assigned with each reading assignment. Old exams will be provided on the course web site about a week before the exam date. Exams are cumulative. However, the second midterm will focus mostly on material from the second part of the course, and at least two thirds of the points on the final exam will be for questions based on the third part of the course.

- **“Cheat Sheets” for Exams**: You are allowed to bring one page of notes (writing is allowed on both sides) to each exam.

- **Don’t Take the Final!**: Undergraduate students with more than 780 points (795 for graduate students) before the final exam will earn an A in the course and will not have to take the final.

- **Extra Credit**: An extra credit assignment will be available after each midterm only to those students not earning at least a C on that test. Each extra credit assignment will be worth up to 25 points added to the test grade, but no more than what is required to bring the score for that test up to the lowest C grade. There will also be an extra credit question for everyone on each exam.

- **Missed Exams**: Except as provided in Penn State policies, make-up exams will not be given. If you have a legitimate reason for missing an exam, I will allow you to take a make-up exam, but it will generally not be the same as the exam taken by the rest of the class.

- **Study Questions**: There will be a reading assignment for most days, except exam days. Along with the reading assignment, you will be assigned 2-4 study questions. These will usually come from the study questions at the back of each chapter. You will need to type up your answers to the study questions and e-mail them to me at least one hour before class (i.e., by 8:05 am). Put the course number (i.e., “For 466W”) in the subject line of your e-mail. Answer the questions in your own words. Study questions will be graded on a 2-point scale: 0=not received, 1=adequate, 2=good. Late study questions will not be accepted. You may skip doing the study questions up to 4 times, since I will drop your 4 lowest scores.

- **Groups**: Problem sets 3 and above, labs 4 and above, and the management plan will be turned in by groups consisting of up to 4 students. Everyone in a group will receive the same grade for each problem set and lab. However, for the management plan individual scores will be partly determined by peer evaluations. It is your responsibility to organize yourselves into groups. You should identify your group within the first 2 or 3 weeks of the semester. Groups must be identified in writing (by e-mail) by January 29. Once they are formed, groups are expected to stay together for the entire semester. A group may choose to “expel” up to one member. This must be done in writing, in the form of a letter to me explaining the reasons for the action. All of the students in the group, except the one being expelled, must sign the letter. If the expelled member cannot find another group to work with, he or she must do all of the remaining group work by him or herself. (You don’t want this to happen to you, so do your share of the work!)
Late Assignments: Assignments are due at the beginning of the class period on the day when they are due. Late assignments may be penalized up to 15% per weekday and 25% per weekend.

Neatness: Assignments and tests should be orderly and well organized. Scores may be reduced for messy or poorly organized work. Writing assignments, including the management plan, must be produced with a word processor and printed.

Check your Answers! You can check whether the answers to a homework problem are correct – before you turn it in – by going to the appropriate “Check your answers” page on the web site. (It won’t tell you what the answer is, only whether you are right or wrong.) Every now and then (very infrequently), I get the answer wrong on the check-your-answers page. If you think the check-your-answers page is wrong, please call or e-mail me right away. The first person or group to identify an incorrect answer on the web page will receive 2 extra-credit points on that assignment.

Spreadsheets and Calculators: You are strongly encouraged to use spreadsheets in completing assignments. Some assignments will be significantly easier if you use a spreadsheet. Most of the labs will require you to use spreadsheets. However, you will only have access to a calculator for exams. You may use any kind of calculator you wish on the exams, but it must weigh less than 1 lb. (i.e., it cannot be a notebook computer).

The TA: The TA for the course is Sandor (pronounced “Shawn-dor”) Toth (sft108@psu.edu). Sandor’s primary job is to grade homework, labs, and the quantitative questions on the exams. He will also help with the evening lab (Section 2). If you have questions about the way a homework assignment or lab was graded, it is generally best to go directly to Sandor. If you are not satisfied after discussing these issues with Sandor, then come see me about it. For all other course matters, feel free to discuss them with me or with Sandor.

Academic Integrity: Academic integrity, as defined by University Faculty Senate Policy 49-20, is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students are encouraged to work together on homework assignments, labs and group work; this is not cheating! However, plagiarism and other forms of academic dishonesty will not be tolerated and may result in sanctions ranging from re-doing the assignment to being formally referred to the Office of Judicial Affairs (www.sa.psu.edu/ja/) for a hearing.

• For more information on what constitutes plagiarism and potential penalties, go to:
  http://tlt.its.psu.edu/suggestions/cyberplag/cyberplagstudent.html
• For more information on the University’s academic integrity policy, go to:
  http://www.psu.edu/ufs/policies/
Communicating With Me:
P Please do not hesitate to come and talk to me whenever you have questions or comments about an assignment or the course. If you are having trouble in the class, you should definitely come see me. I want everyone in the class to do well.
P If my office hours are inconvenient, I am always happy to make an appointment to see you at another time. If my office door is open, feel free to come in, regardless of the time.
P You can call me at my office or e-mail me at any time. I usually check my e-mail at least once in the morning and once in the afternoon.
P Do not ask me for notes or copies of handouts if you miss class. Handouts (such as problem sets, readings, etc.) will be available on the web site. My lecture notes will also be available on the web page. In addition, you may get notes for missed classes from a classmate.
P I will be happy to help you with an assignment after you have made a genuine effort to do it yourself and have read the related sections of the textbook.

Student/Instructor Responsibilities:
Learning should be a cooperative venture between the students and the instructor and among the students of a class. The following lists are incomplete, but should help clarify our roles and responsibilities to each other. Feel free to give me your own additions or comments.

Both the Students and the Instructor:
1. Be prepared and on time for class.
2. Treat everyone in the class with respect.

Instructor:
1. Set clear expectations and provide motivation for students.
2. Select and prepare course materials, and make them readily available to students in a timely fashion.
3. Explain difficult concepts.
5. Provide fair and prompt feedback and grading.
6. Give students opportunities to provide feedback on the course and listen to their comments and suggestions.

Students:
1. Study assigned readings before class.
2. Complete all assignments on time.
3. Attend and participate in class and labs.
4. Think for yourself and ask questions.
5. Contribute at least your share to group assignments.
6. Give thoughtful feedback to the instructor on how to improve the course.
TENTATIVE SCHEDULE – SPRING 2004

Week 1 – January 12-16
Tuesday lecture: Review course and syllabus. Discussion: What is Forest Management?
• Read Chapter 1.
• Hand out Writing Assignment 1.
Wednesday lab: Lab 1 – Using spreadsheets. Growth and yield.
Thursday lecture: Discounting concepts and formulas.
• Read through Chapter 2, Section 3.
• Hand out Problem Set 1.

Week 2 – January 19-23
Tuesday lecture: More discounting concepts and formulas.
• Hand in Writing Assignment 1.
• Complete reading Chapter 2.
Wednesday lab: Lab 2 – Discounting problems on a spreadsheet.
Thursday lecture: Inflation. Components of the interest rate. Real and nominal values.
• Read through Chapter 3, Section 6.
• Hand in Problem Set 1.
• Hand out Problem Set 2.

Week 3 – January 26-30
Tuesday lecture: Changing real prices.
• Complete reading Chapter 3.
Wednesday lab: Lab 3 – Price trends. Discounting problems with inflation.
Thursday lecture: Review financial analysis. Financial criteria – NPV, IRR, B/C.
• Read all of Chapter 4.

Week 4 – February 2-6
Tuesday lecture: Growth and yield concepts. Intermediate treatments.
• Read all of Chapter 5.
• Hand in Problem Set 2.
• Hand out Problem Set 3.
Wednesday lab: Lab 4 – Internal rate of return. Growth and yield.
Thursday lecture: The Land Expectation Value (LEV).
• Read through Chapter 6, Section 2.

Week 5 – February 9-13
Tuesday lecture: The LEV and optimal rotations.
• Complete reading Chapter 6.
Wednesday lab: Review for Exam I. Lab 5 – LEV and optimal rotations.
Thursday lecture: Forest Value – the value of forestland with trees.
• Read through Chapter 7, Section 4.
• Hand in Problem Set 3.
Week 6 – February 16-20
Tuesday lecture: Forest Value with inflation.
• Read all of Chapter 7.
Wednesday lab: Exam I.
Thursday lecture: Forest Value with inflation. Thinning and other intermediate treatments.
• Read all of Chapter 8.
• Hand out Writing Assignment 2.

Week 7 – February 23-27
Tuesday lecture: Uneven-aged management. The DeLiocourt Q.
• Read through Chapter 9, Section 4.
• Hand out Problem Set 4.
Wednesday lab: Review Exam I. Lab 6 – Forest Value versus liquidation value.
Thursday lecture: The cutting cycle and residual basal area.
• Read through Chapter 9, Section 5.

Week 8 – March 1-5
Tuesday lecture: Financial maturity.
• Complete reading Chapter 9.
• Hand in Writing Assignment 2.
Wednesday lab: Lab 7 – Uneven-aged management.
Thursday lecture: Regulation: area control.
• Read through Chapter 10, Section 2.
• Hand in Problem Set 4.
• Hand out Problem Set 5.

Week 9 – March 8-12
SPRING BREAK!

Week 10 – March 15-19
Tuesday lecture: Regulation: area control.
• Read through Chapter 10, Section 2.
Wednesday lab: Review for Exam II. Lab 8 – Area control.
Thursday lecture: Long-term sustained yield. Inventory, growth and removals.
• Read Chapter 10, Section 5.

Week 11 – March 22-26
Tuesday lecture: Introduction to linear programming (LP). Formulating simple problems.
• Read all of Chapter 11.
• Hand in Problem Set 5.
Wednesday lab: Exam II.
Thursday lecture: Formulating and interpreting simple LP problems.
• Hand out Problem Set 6.
Week 12 – March 29-April 2
Tuesday lecture: Formulating a forest planning problem as a cost-minimizing LP.
  • Read through Chapter 12, Section 3.
Wednesday lab: Review Exam II. Lab 9 – Formulating and solving simple LP problems.
Thursday lecture: Formulating a forest planning problem as a cost-minimizing LP.
  • Read through Chapter 12, Section 3.

Week 13 – April 5-9
Tuesday lecture: Interpreting the solution of a forest planning problem.
  • Complete reading Chapter 12.
  • Hand in Problem Set 6.
Wednesday lab: Lab 10 – Using WRITELIN to formulate a forest planning LP.
  • Hand out Management Plan Assignments.
Thursday lecture: The profit maximization harvest scheduling formulation.
  • Read all of Chapter 13.

Week 14 – April 12-16
Tuesday lecture: Longer planning horizons with multiple harvests.
  • Read Chapter 14, sections ?.
Wednesday lab: Work on management plans.
  • Groups submit base runs and a plan for completing their management plan.
Thursday: Longer planning horizons with multiple harvests (continued).
  • Finish reading Chapter 14.

Week 15 – April 19-23
Tuesday lecture: Incorporating non-timber objectives.
  • Read Chapter 15, sections ?.
Wednesday lab: Work on management plans.
Thursday lecture: Incorporating non-timber objectives (continued).
  • Finish reading Chapter 15.
  • Groups e-mail final management plan spreadsheets to Dr. McDill by Friday.

Week 16 – April 26-30
Tuesday lecture: Management plan presentations.
  • All groups submit management plans.
Wednesday lab: Review for Final Exam.
Thursday lecture: Management plan presentations.
Table 1. My FOR 466W Scores.

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<thead>
<tr>
<th>Graded Item</th>
<th>Possible</th>
<th>My Score</th>
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<tbody>
<tr>
<td>Problem Set 1 – Financial Analysis</td>
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<td>Problem Set 2 – Inflation</td>
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<td>Problem Set 3 – Growth, Yield and LEV</td>
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<td>Problem Set 4 – Uneven-aged Management</td>
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<td>Problem Set 5 – Forest Regulation</td>
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<td>Problem Set 6 – Linear Programming</td>
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<tr>
<td>Lab 1 – Growth and Yield Calculations on a Spreadsheet</td>
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<tr>
<td>Lab 2 – Financial Analysis</td>
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<tr>
<td>Lab 3 – Understanding Inflation and Price Changes</td>
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<td>Lab 4 – Internal Rate of Return and Growth and Yield</td>
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<td>Lab 5 – Marginal Analysis of the Even-Aged Rotation Decision</td>
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<td>Lab 6 – Forest Value vs. Liquidation Value</td>
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<td>Lab 7 – Regeneration Relationships in Uneven-aged Management</td>
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<td>Lab 8 – Regulation by Area Control</td>
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<tr>
<td>Lab 9 – Formulating and Solving Simple LP Problems</td>
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<tr>
<td>Lab 10 – Using WRITELIN to formulate a forest planning LP.</td>
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<tr>
<td>Writing Assignment 1 – Letter of Application and Résumé</td>
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<td>Writing Assignment 2 – Management Plan for a Single Stand</td>
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<td>Management Plan for a Forest</td>
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<td>Midterm I – Discounting, LEV, Forest Value</td>
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<td>Midterm II – Forest Value, Uneven-aged Management, Regulation</td>
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<td>Final Exam – Harvest Scheduling</td>
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<tr>
<td>Study Questions</td>
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<td>Extra Credit</td>
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