Distance Syllabus

FO 8243 – ADVANCED FOREST RESOURCE MANAGEMENT & PLANNING

INSTRUCTOR:

Dr. Ian A. Munn Office: 349 Thompson Hall
Phone: 325-4546
Office Hours: 11:00am - 12:00 noon T-TH (via email or chatroom)

COURSE OBJECTIVES:

- To present the concepts, techniques, and tools required to manage the flow of goods and services from the forest. Specific topics to be covered include financial analysis, valuation of forest products including non-market goods, growth and yield models, stand management, harvest scheduling, and forest regulation.
- To review the application of mathematical programming techniques such as linear programming, goal programming and dynamic programming to forest management problems.
- To present basic modeling techniques used to analyze forest resource management problems.
- To present current issues in forest resource management.
- To provide students experience in presentation of scientific material in a class room setting.

COURSE FORMAT:

Online lectures, discussion boards and online lab demonstrations by the instructor **and the students** will be utilized to present the materials covered in this course. Student participation is both expected and essential.

TEXT:

Bettinger, P., Boston, K, Siry, J.P. & Grebner, D.L. Forest Management and Planning. Academic Press, Burlington, MA.

Grading: Course grades will be based on class participation, a mid-term exam, periodic reports and a term project. Course grades will be awarded as follows:

A -90%+
B - 80%-89%
C - 70%-79%
NC - below 70%

Class Participation:	5 pts
Online 1st exam:	30 pts
Online Lecture:	10 pts
Online Reports:	25 pts
Online Project	30 pts
Online 2nd Exam	30 pts

Class Participation: Students will be evaluated on their participation in online discussions. Both the quality and quantity of student input will be considered.

Online 1st Exam: This exam will cover all prior lectures, reading assignments, lab assignments and online discussions.

Online Lecture: Each student will be required to give one or more lectures. Horizon Wimba will be utilized to assist the students in this requirement. Students may select the class date and topic and lead the appropriate online lab or discussion session. Students may select their lecture topics on a first-come, first-serve basis. Students may develop their own topic subject to the instructor's approval.

Reports: Students will be required to submit written reports via MyCourses on lab, reading assignments, and student projects throughout the semester.

Term Project: Each student is required to complete a project, present the results online to the class (5%) and submit a written report (20%). Acceptable projects include traditional term papers, case studies, comprehensive literature reviews, or research papers but must utilize the concepts and materials relevant to forest management. Format of the written report will adhere to Forest Science guidelines. Term projects **will not** cover the same material as the lecture topic selected by the student. Each student will formally review/critique another student's project (5%).

Online 2nd Exam: This exam will cover all prior lectures, reading assignments, lab assignments, online discussions, and student projects. Some students may be excused from the taking this test at the discretion of the instructor.

Topics:

- Growth and Yield (1.5 contact hours)
- Optimal Rotation Ages – Biological & Financial (1.5 contact hours)
- Valuation – Market Goods, Non Market Goods (1.5 contact hours)
- Classical Forest Management (1.5 contact hours)
- Linear Programming/Lindo Review (1.5 contact hours)
- Basic Timber LP Formulation (4.5 contact hours)
- Spatial Issues (3.0 contact hours)
- Goal Programming/GP Example (1.5 contact hours)
- Habitat/Wildlife Management (3.0 contact hours)
- Planning under Uncertainty (3.0 contact hours)
- Eco-system Management (1.5 contact hours)
- Sustainable Forestry (1.5 contact hours)
- Certification (1.5 contact hours)
- Conservation Easements (1.5 contact hours)
- Carbon Sequestration (1.5 contact hours)
- **Student Presentations** (3 sessions 2 contact hours each; 6 contact hours)
- Marketable Harvesting Permits (1.5 contact hours)
- **Exams** (2 online exams, 2 hours each; 4 contact hours)
- **General Discussion Boards** (2 contact hours)
- **Research/Report Discussion Board** (2 contact hour)

Total Contact Hours: 45.5

Academic Misconduct: The maximum sanctions available to the course instructor will be imposed upon any student found guilty of academic misconduct. What constitutes academic misconduct and the maximum sanctions are described in the University's Academic Operating Policy AOP 12.07 - Academic Misconduct and can be found on Mississippi State University's web page: http://www.msstate.edu/dept/audit/mainindex.html under Student Affairs – Code of Student Conduct.

REFERENCES:

Johnson, K. H. and H. L. Scheurman. 1977. Techniques for prescribing optimal timber harvest and investment under different objectives – discussion and synthesis. Forest Science Monograph 18.

Nautiyal, J.C. and P.H. Pearse. 1967. Optimizing the conversion to sustained yield: A programming solution. Forest Science 13(2):131-139.

Faustmann, M. 1849. Calculation of the value which forest land and immature stands possess for forestry. reprinted in: Journal of Forest Economics 1995 1(1):7-44.

Samuelson, P. A. 1976. Economics of forestry in an evolving society. reprinted from the original in: Journal of Forest Economics 1995 1(1):115-149.

Chang, S.J., 1984. Determination of the optimal rotation age: A theoretical analysis. Forest Ecology and Management 8:137-147.

Ecosystem Valuation – Travel Cost Method. ttp://www.ecosystemvaluation.org/travel_cost.htm

Ecosystem Valuation – Contingent Valuation Method. http://www.ecosystemvaluation.org/contingent_valuation.htm

Pearse, P.H. and T.P. Holmes. 1993. Accounting for nonmarket benefits in southern forest management. Southern Journal of Applied Forestry 17(2):84-89.

Field, D.B. 1973. Goal programming for forest management. Forest Science 19(2):125-135.

Hotvedt, J.E. 1983. Application of linear goal programming to forest harvest scheduling. Southern Journal of Agricultural Economics. 1983:103-108.

Murray, A. T. 1999. Spatial restrictions in harvest scheduling. 45(1):45-52.

Carter D.R., M. Voiatiz, C.B. Moss, and L.K. Arvanitis. 1997. Ecosystem Management or infeasible guidelines? Implications of adjacency restrictions for wildlife habitat and timber production. Can. J. For. Res.27:1302-1310.

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Roloff, G.J., B. Carroll, and S. Scharosch. 1999. A decision support system for incorporating wildlife habitat quality into forest planning. Western journal of Applied Forestry 14(2):91-99.

Haight, R.G. and L. E. Travis. 1997. Wildlife conservation planning using stochastic optimization and importance sampling. Forest Science 43(1):129-139.

Hof, J.G. and L.A. Joyce. 1992. Spatial Optimization for wildlife and timber in managed forest ecosystems. Forest Science 38(3)489-508.

Hof, J. G. and M.G. Raphael. 1993. Some mathematical programming approaches for optimizing timber age-class distributions to meet multispecies wildlife population objectives. Canadian Journal of Forest Research 23:828-834.

Hof. J.G., M. Bevers, L. Joyce, and B. Kent. 1994. An integer programming approach for spatially and temporally optimizing wildlife populations. Forest Science 40(1):177-191.