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Fall 2013

## Deterministic Optimization and Design - University of California, Davis

Jay R. Lund

University of California, Davis, jrlund@ucdavis.edu

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Lund, Jay R., "Deterministic Optimization and Design - University of California, Davis" (2013). *All ECSTATIC Materials*. Paper 17.

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MW 4-6pm 1060 Bainer Hall

Instructors                      Office                      Office Hours

Instructor: Jay Lund    Watershed Sciences    MW 3-4, by appointment, jrlund@ucdavis.edu

TA:    Rui Hui                      Watershed Sciences    TBA

<u>Date</u>	<u>Topic</u>	<u>Reading/Assignment</u>
Sept.30	Systems Analysis/Problem Formulation	Liebman 1989
Oct. 2	Objectives, Constraints, & Calculus	Chapters 1, 2, 3 (Rardin text)
7	Lagrange Multipliers	Chapters 13.1-13.4, 14.1-14.4
9	Lagrange Multipliers & Math. Programming	<b>HW 1 due</b> [Rui Hui; Lund gone]
14	Linear Programming (LP)	Chapter 4
16	Simplex Method	<b>HW 2 due</b>
21	Simplex Method	Chapter 5
23	Sensitivity Analysis	Chapter 6, <b>HW 3 due</b>
28	LP Derivation/Duality	Chapter 7
30	Sensitivity Analysis & LP Applications	<b>Project 1 due</b> [Rui Hui; Lund gone]
Nov. 4	LP Applications	Chapter 10
6	LP Enhancements & Applications	<b>Project 2 due</b>
11	<b>HOLIDAY</b>	
13	Integer Programming & Applications	Chapters 11, 12 <b>HW 4 due</b>
18	<b>MID-TERM</b> (on material thru 7 Nov.)	
20	Dynamic Programming (DP)	Chapter 9
25	Dynamic Programming	
27	Non-Linear Programming	Chapters 8, 13.5-13.8, 14.5-14.9 <b>HW 5 due</b>
Dec. 2	Genetic Algorithms	Chapter 12.7, 12.8
4	Slack and Review	<b>Project 3 due</b>

Grading, approximately:	Homework: 15%	Mid-Term: 20%
	Projects: 30%	Final: 35%

The final exam is scheduled for Friday, December 13, 3:30-5:30pm (Oh, lucky day! Study extra!)

Text: Class notes, Rardin *Optimization in Operations Research*, or look at Hillier & Lieberman's *Introduction to Operations Research*, any edition.

Course web site: <http://cee.engr.ucdavis.edu/faculty/lund/Classes/ECI153/ECI153.html>

Textbook web site: <http://comp.uark.edu/~rrardin/oorbook/>