Fall 2013

Deterministic Optimization and Design - University of California, Davis

Jay R. Lund
University of California, Davis, jrlund@ucdavis.edu

Follow this and additional works at: https://digitalcommons.usu.edu/ecstatic_all

Part of the Civil Engineering Commons

Recommended Citation
## ECI 153
### Deterministic Optimization and Design
#### Fall 2013

**MW 4-6pm**  
1060 Bainer Hall  

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

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

**TA:** Rui Hui  
Watershed Sciences  
TBA

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading/Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 30</td>
<td>Systems Analysis/Problem Formulation</td>
<td>Liebman 1989</td>
</tr>
<tr>
<td>Oct. 2</td>
<td>Objectives, Constraints, &amp; Calculus</td>
<td>Chapters 1, 2, 3 (Rardin text)</td>
</tr>
<tr>
<td>7</td>
<td>Lagrange Multipliers</td>
<td>Chapters 13.1-13.4, 14.1-14.4</td>
</tr>
<tr>
<td>9</td>
<td>Lagrange Multipliers &amp; Math. Programming</td>
<td><a href="#">HW 1 due</a></td>
</tr>
<tr>
<td>14</td>
<td>Linear Programming (LP)</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>16</td>
<td>Simplex Method</td>
<td><strong>HW 2 due</strong></td>
</tr>
<tr>
<td>21</td>
<td>Simplex Method</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>23</td>
<td>Sensitivity Analysis</td>
<td>Chapter 6, <strong>HW 3 due</strong></td>
</tr>
<tr>
<td>28</td>
<td>LP Derivation/Duality</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>30</td>
<td>Sensitivity Analysis &amp; LP Applications</td>
<td><a href="#">Project 1 due</a></td>
</tr>
</tbody>
</table>

**Nov. 4**  
LP Applications  
Chapter 10

**6**  
LP Enhancements & Applications  
**Project 2 due**

**11**  
**HOLIDAY**

**13**  
Integer Programming & Applications  
Chapters 11, 12 **HW 4 due**

**18**  
**MID-TERM** (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 **HW 5 due**

**Dec. 2**  
Genetic Algorithms  
Chapter 12.7, 12.8

**4**  
Slack and Review  
**Project 3 due**

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!)


Textbook web site: [http://comp.uark.edu/~rrardin/oorbook/](http://comp.uark.edu/~rrardin/oorbook/)