Catalogue Description

NREM 458: Environmental Benefit Cost Analysis
Fundamentals of benefit-cost analysis with extensions to environmental impacts and projects; case studies.

Course Overview
This course provides students with an understanding of the fundamentals of benefit-cost analysis. The undergraduate students will focus on learning these fundamentals and this course will eventually be revised to be a 300 level course with this objective. Social benefit-cost analysis, which examines public and private projects that have significant social impacts are also addressed. The social issues that will be addressed include income distribution, valuation of non-market goods and environmental impact analysis. This means that all three dimensions of sustainability will be covered in the course. Students will learn to present their analyses in the format used by professional consultants. Graduate students (NREM 691 students) are expected to work produce a paper on a topic they select, rather than use a case study from the book.

Student Learning Outcomes
After completing the course, student will be able to conduct benefit-cost analysis for publically and privately funded project using Excel and be able to present this results form their analysis using a professional format. They will be able to account income distribution, valuation of non-market goods and environmental impact analysis in the project analysis

Skills Required
The course emphasizes practical application. Spreadsheets are used to conduct the analyses so you will need Excel. While the templates used in the course outline the formats, students will need to use basic spreadsheet operations in order to complete the assignments. This is taught in the course and some students may need extra time to learn Excel basics.

Textbook

This book is available, hopefully, through the bookstore. An e-book is also available. However, it can only be opened when the computer is connected to the internet and cannot be printed. In addition, the e-book has some figures that are unclear.

Supporting Materials
The instructor will make narrated powerpoints, frequently asked questions (FAQs), and lectures in MP3 files available on a CD for a $20 fee. The lectures explain each power point. The power point files and other supporting materials on the CD should have all the unclear figures that the e-book does not have. The CD should be ready for purchase by May 7.

Webinars will also be held on-line and recorded. These will be short session designed to address specific challenges encountered on the assignments and answer questions. If you cannot attend, you can watch the recorded webinar. This should provide you with enough resources that you can work on the assignments. Help session or office hours can also be scheduled as the need arises.

The instructor is happy to help students organize study or project groups. If one or more students would like to start a group, the instructor can forward a call to organize to all students. Please check your UH e-mail regularly so everyone can communicate.

**Course Format and Grading**
The course will be conducted on-line. Students will be assigned readings and be expected to complete assignments based on these readings. Students will also be expected to complete a final project/case study. The assignments will count for two-thirds of the course grade and the final project/case study will count for one-third of the grade. The assignments are given below for those who want to work at a faster pace.

**Assignments**
This is an on-line course so you turn in all assignments by e-mail to the instructor. Label each file with your **last name and the assignment number**. If you need help, please e-mail the instructor with your question(s). Assignments can be turned in whenever you like and will be graded promptly. You will have one chance to correct your work and re-submit it. The course schedule is given with dates for those that need a schedule to follow so they do not fall behind. It is easy to fall behind so be warned. All work must be submitted before the end of the Summer semester in order to receive a grade. If they are not submitted in time you will receive an I, which you can make up in the Fall. The assignments follow the examples in the book and reading the book helps. Please notice that an assignment is not given for each chapter.

**Final Project**
Undergraduate student can complete the case study found after Chapter 5. Graduate students must work on a project of their own design and can also work in groups. Each student in the group gets the same grade on the final project.

**Topics Covered**
Introduction to Benefit-Cost Analysis
Principles of Investment Appraisal
Investment Decision Rules
Private Benefit-Cost Analysis
Efficiency of Benefit-Cost Analysis
Calculating Net Benefits to the Reference Group
Consumer and Producer Surplus
Valuing Traded and Non-traded Commodities
Incorporating Risk
The Social Discount Rate, Cost of Public Funds and the Value of Information
Weighting Net Benefits to Account for Income Distribution
Valuation of Non-marketed Good
Economic Impact Analysis
Writing the Benefit-Cost Analysis Report

Schedule

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>1</td>
<td>5/28</td>
<td>View Economics review and investment analysis ppt</td>
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<tr>
<td>2</td>
<td>6/3</td>
<td>Read Chap. 2 and 3, complete assignment 1, homework 1</td>
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<tr>
<td>3</td>
<td>6/10</td>
<td>Complete assignment 2</td>
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<tr>
<td>4</td>
<td>6/17</td>
<td>Read Chap. 1, complete assignment 3</td>
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<td>5</td>
<td>6/24</td>
<td>Read Chap. 4, complete assignment 4</td>
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<tr>
<td>6</td>
<td>7/1</td>
<td>Read Chaps. 5, complete assignment 5</td>
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<td>7</td>
<td>7/8</td>
<td>Read Chaps. 6, complete assignment 6</td>
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<td>8</td>
<td>7/15</td>
<td>Read Chap. 7, complete assignment 7</td>
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<td>9</td>
<td>7/22</td>
<td>Read Chap. 10 and 11, complete assignments 8 and 9</td>
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<td>10</td>
<td>7/29</td>
<td>Read Chap. 12, complete assignment 10</td>
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<td>11</td>
<td>8/5</td>
<td>Read Chapter 14, Finish Final Project</td>
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<tr>
<td>12</td>
<td>8/15</td>
<td>Final Project Due</td>
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</tbody>
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NREM 458 Assignments

Assignment 1 pp. 36, 1-3 (on Chapter 2) and Homework set 1 on CD. (use spreadsheet if you like)

Assignment 2 pp-60-61, 1, 2, 3, 4, 7 (on Chapter 3)

Assignment 3 pp.16-17, 1-4 (on Chapter 1)

Assignment 4 pp. 90-91, 1, 2, 4, 5, 6 (on Chapter 4)

Assignment 5 pp. 120-121, 1, 2, 3 (on Chapter 5)

Assignment 6 pp.144-145, 1, 2, 3 (on Chapter 6)

Assignment 7 pp.175-176, 1, 2, 4 (on Chapter 7)

Assignment 8 pp.236-237, 1, 4 (on Chapter 10)

Assignment 9, pp. 260, 2 (on Chapter 11)

Assignment 10, pp. 286 1, 2, 3 (on Chapter 12)

Final Project- Case Study in book (NREM 458) or project of your choice (NREM 691).