PROJECT EVALUATION (1.011)

Spring 2011
Lecture 1

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1.011 Overview

- Lectures/Recitations
  - Sussman, Martland, guests presenting case
  - Jain/Ezzell

- Assignments (A)
- Term project (P)

THIS IS A CLASS ABOUT DECIDING WHAT TO DO. THAT'S WHAT ENGINEERS ULTIMATELY DO.

THIS IS A CLASS ABOUT LARGE-SCALE INFRASTRUCTURE (FOR THE MOST PART)

Learning Objectives:

Following this class, students should be able to

1. Effectively use basic engineering economics tools to evaluate major infrastructure projects
2. Understand when to complement this basic analysis with more sophisticated tools
3. Critique the process used to evaluate typical infrastructure projects
4. Understand a broad range of project types of relevance to CEE and related fields
5. Understand some ways in which project performance can be measured and improved
6. Understand the role of uncertainty in project evaluation
7. Do an “end-to-end” project evaluation

ASSIGNMENTS

- Written self-intros–professional interests, relevant experience, learning expectation (ungraded)

A1.1 - Basic concepts I

A1.2 - Basic concepts II

A2 - Large scale project evaluation

A3.1 - Advanced concepts I

A3.2 - Advanced concepts II

A4 - Peer Project Evaluations

1-pagers on guest cases–due the next class after the case lecture

TERM PROJECT

- Work in teams of 2 or 3
- A project evaluation
- Your choice, subject to instructors' review

THE TERM PROJECT SHOULD BE ABOUT 15 PAGES LONG, INCLUDING:

- Background on the project
- If a current or past project, a summary of the costs and benefits that were considered by decision-makers and how they were analyzed
- Major issues that affect(ed) the project
- Significant decisions that will be/were made regarding project design and implementation
- Status of the project and results if it has been completed
- Your own analysis of the relevant costs and benefits (if you choose an entirely new project, this will be the main body of your project)

- Discussion and critique of the project and the project evaluation process

PROJECT DUE DATES:

Teams formed: Lecture 6

Project Description P1: (2pages): Due Lecture 10

P1 needs to address the following topics

- Provide a brief project description
- Why is the project interesting?
- What are the key uncertainties involved in the project?

P2 Due Lecture 17:

Progress Report 1: (2 pages)

P2 needs to address the following topics

- Identification of Stakeholders
- Identification of Benefits and Costs
- Data Sources you are using and any data problems you are encountering

P3 Due Recitation 10:

Progress Report 2: (2 pages)

P3 needs to address the following topics

- Project finance
- Major barriers to a successful completion of your written project

P4 LECTURE 23:

Copy of powerpoint presentation due

Lectures 23, 24, and 25:

Presentations to class (participation points for constructive questions and comments from the audience)

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P5 LECTURE 26:

Final Report due at 11:59pm (last day of classes)

Oral Presentations on term project–

Mini-presentation (<7 minutes)–your initial ideas (during Recitation 6)

Final presentation at end of term during Lectures 23, 24, 25

Meetings with 1.011 instructing staff – to be arranged

Teaching Modalities:

The intent is that the classes should be as interactive as possible. Occasionally it's "we lecture you listen" but we will endeavor to get you involved

In lectures

Methods and concepts

Case studies to illustrate and expand upon methods and concepts

"Reports from the Front" (RFTF)—discussion of current events of relevance to 1.011

Also, we want you to learn from each other– student project presentations will comprise the last several lectures

In recitations

Review and clarification of methods and concepts

Discussion of problem sets/ quiz

Project work

Outside the classroom

Each term project team (see below) will meet with the teaching staff several times during the semester

Student Work:

Readings, as assigned

Problem sets

Term project

Participation in class.

- Contributing to class discussion
- The class will have several guest lecturers discussing projects in their domain areas. You will submit a < 1-page summary for each case turned in the next class after the case is presented (whether you attend that case class or not) as a part of class participation.

One in-class exam, open book and notes

READINGS

Book: Carl D. Martland, *Toward More Sustainable Infrastructure: Project Evaluation for Planners and Engineers, John Wiley, 2011*

Other readings from:

- Davidson, *Macroengineering*
- Gawande, *The Checklist Manifesto*
- Other books

Case Readings

Professional papers and reports

Reports from the Front

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