

**University of Waterloo**  
**Department of Economics**  
**ECON 361, Cost Benefit Analysis & Project Evaluation**  
**Fall 2016**  
**Course Outline**

**Instructor:** Fiona T. Rahman

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**Lecture Hours & Location:** 6:30 – 7:50pm, MW, EV3 4412

**Office Hours:** Monday, 5:00pm -6:15pm, (Other times by appointment only)

**Course Description:** Cost-benefit analysis provides an analytical framework for conducting economic analysis of public policy. It offers a practical and systematic approach for comparing a proposal's monetized social costs and benefits and thereby assisting governments, regulatory bodies and other agencies in their project evaluation as well as decision making. Applications of CBA is significant in analyses of infrastructure projects, environmental and safety regulations, social and educational programs, healthcare policies, use of natural resources including forests and fisheries and in many other arena.

This course will introduce students to the principles of cost benefit analysis including consideration of welfare economics, the treatment of intangibles, non-efficiency considerations, time discounting, evaluation criteria, uncertainty and risk. At the end of the term, students will not only know how to conduct a CBA, but also understand the limitations and controversies associated with it.

**Course Objective:**

By the end of this course, successful students will be able to:

- describe the process of CBA and the controversy and limitations associated with it;
- define key concepts leveraged in the CBA process, including:
  - willingness-to-pay,
  - opportunity cost,
  - pareto efficiency,
  - consumer and producer surplus,
  - compensating and equivalent variation, and cash discounting;

- summarize the CBA process flow and its supporting conventional steps;
- describe and assess impacts of decisions in primary and secondary markets that are efficient or inefficient within the CBA process;
- describe various approaches within the CBA process for the valuation of non-market goods;
- explain how uncertainty enters into the CBA process and how to apply the CBA process to mitigate associated risk; and
- write a proposal to do an actual CBA

**Prerequisite:** ECON201, ECON221

### Required Textbook

Boardman, A. Greenberg, D. Vining, A. Weimer, A. (2010). Cost Benefit Analysis: Concept and Practice (4th Edition). Prentice Hall. A copy of the textbook is placed on reserve in the Dana Porter library

**Note:** this text is also available electronically at a reduced cost from CourseSmart. For more information, please see <http://www.coursesmart.com/students>.

## Student Evaluation

Final course grades will be assigned on the basis of performance on the individual assessments shown in the table below.

ASSESSMENT	Weighting
Assignment 1	5 %
Assignment 2	5%
Assignment 3 (Group project, proposal to do a CBA)	10 %
In-class Quizzes 1,2,3 & 4	2.5 x 4 =10%
Online Group Discussions, 1 & 2	2.5 x 2 =5%
Midterm Exam	15%
Final Exam	50%

## Weekly Schedule:

Week	Module	Readings	Activities and Assignments	Due Date
Week 1 (Sept. 12 – 18)	<b>Module 01:</b> Introduction <b>Module 02:</b> The CBA Modeling Process	<ul style="list-style-type: none"> <li>▪ Text: Chapter 1</li> <li>▪ Module 1 &amp; 2 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Introduce Yourself to Your Group on Learn ( <b>ungraded</b> )	Monday, Sept 19, 2016 at 11:59 PM
Week 2	<b>Module 03:</b> Use of Basic Tools	<ul style="list-style-type: none"> <li>▪ Text: Chapter 6</li> <li>▪ Module 3 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>		
Week 3	<b>Module 04:</b> Efficiency (Part A)	<ul style="list-style-type: none"> <li>▪ Text: Part A - Chapter 2</li> <li>▪ Module 4 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Quiz 1 ( <b>2.5%</b> ) on Module 1,2 & 3	Wednesday, September 28, 2016 during class time
Week 4	<b>Module 04:</b> Efficiency (Part B)	<ul style="list-style-type: none"> <li>▪ Text: Part B - Chapter 3</li> <li>▪ Module 4 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Assignment 1 ( <b>5%</b> ) <i>[Assignment 1 will be available Monday, Sept. 19, 2016]</i>	Wednesday, Oct 5, 2016 during class time
Week 5	<b>Module 05:</b> Primary Markets	<ul style="list-style-type: none"> <li>▪ Text: Chapter 5</li> <li>▪ Module 5 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Group Discussion 1 <i>[Group Discussion 1 is worth a total of 2.5% of your final grade]</i>	The discussion will be available from Monday, Oct. 10, 2016 at 7:00 AM to Sunday, Oct. 16, 2016 at 11:59 PM
Week 6	<b>Module 06:</b> Secondary Markets	<ul style="list-style-type: none"> <li>▪ Text: Chapter 5</li> <li>▪ Module 6 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Quiz 2 ( <b>2.5%</b> ) on Module 4 &5	Oct. 19, 2016 during class time

Week 7	<b>Module 07:</b> Predicting and Monetizing Impacts	<ul style="list-style-type: none"> <li>▪ Text: Chapter 11</li> <li>▪ Module 7 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Assignment 2 (5%) <i>[Assignment 2 will be available Monday, Oct. 10, 2016]</i>	Wednesday, Oct 26, 2016 during class time
Week 8	<b>Module 08:</b> Valuation Using Observed Behaviour: Indirect Methods	<ul style="list-style-type: none"> <li>▪ Text: Chapter 14</li> <li>▪ Module 8 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Midterm Exam on Module 1,2,3,4,5 & 6	Wednesday, Nov. 2 during class time
Week 9	<b>Module 09:</b> Valuation Using Observed Behaviour: Application of Indirect Methods	<ul style="list-style-type: none"> <li>▪ Text: Chapter 14</li> <li>▪ Module 9 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Group Discussion 2 <i>[Group Discussion 2 is worth a total of 2.5% of your final grade]</i>	The discussion will be available from Monday, Nov.7, 2016 at 7:00 AM to Sunday, Nov. 13, 2016 at 11:59 PM
Week 10	<b>Module 10:</b> Shadow Prices From Secondary Markets	<ul style="list-style-type: none"> <li>▪ Text: Chapter 16</li> <li>▪ Module 10 slides (or notes)</li> <li>▪ Supporting Article</li> </ul>	Quiz 3 (2.5%) on Module 7,8 & 9	Wednesday, , Nov. 9, 2016 during class time
Week 11	<b>Module 11:</b> Risk and Uncertainty & Final CBA Step	<ul style="list-style-type: none"> <li>▪ Text: Chapter 7 pp. 167-187 (stop at Information and Quasi-Option Value)</li> <li>▪ Module 11 slides</li> <li>▪ Supporting Article</li> </ul>	Assignment 3 (10%)	Group project due Wednesday, Nov. 23 2016 during class time
Week 12	<b>Module 12:</b> Valuation Using Pilot Projects (time permitting)	<ul style="list-style-type: none"> <li>▪ Text: Chapter 12 pp. 292-307</li> <li>▪ Supporting Article</li> </ul>	Quiz 4 (2.5%) On Module 10 & 11	Wednesday, Nov 30, 2016 during class time

Our progress with the lecture materials will depend on class ability and interest.

**Resources:** Lecture slides and Problem sets will be posted to <http://learn.uwaterloo.ca> at 1169 -Fall2016 - ECON 361 Cost benefit Analysis & Projects Evaluation

## Group Project:

During the first week of term, you will be placed in groups of 5 students. To see which group you are in, click **Connect** and then **Groups** on the course navigation bar on Learn.

Your group will be responsible to propose and design a cost-benefit analysis (you do not actually have to undertake the analysis) of a public policy or program, following the steps outlined in the textbook in table 1.2. The proposal should include FOUR parts:

- Part 1(1 mark): An outline of the proposed public policy or program to be considered (choose something that is of interest to your group)
- Part 2 (2 marks): present what other evidence or literature exists that is related to the policy or program under your consideration.
- Part 3(6 marks): Discuss how you plan to conduct all the 9 steps of CBA including a list of possible impacts, how you plan to get data and monetize the impacts, potential measurement and data problems, possible secondary market effects and what kind of sensitivity analysis should be undertaken.
- Part 4(1 mark): In the final part, discuss how you will be making a recommendation or what would be the basis of your recommendation.

### Note:

- Once you choose a policy or program, please get it approved by me. An email outlining the topic would be fine.
- The final proposal should be no more than 10 pages ( cambria, 12 font size, double spaced) excluding the bibliography, figures and tables.

## Important Notices

- The penalty for late assignment is 10% of the assignment per day. Students submitting identical assignments will be highly penalized. **Assignments will not be accepted three days after the deadline.**
- **There is no deferred or make-up midterm tests.** If you miss the test due to illness and have a valid medical documentation, then the weight of the test will be shifted to the final exam. Otherwise, a mark of zero will be given to the missed test.
- The final exam will be comprehensive. The date for the final exam is determined by the Registrar's Office. The final exam period for Fall Term 2016 is December 8 to December 22. Students are expected to be available during this time. Travel plans are not acceptable grounds for granting an alternative final examination time.
- To maintain a classroom environment that is conducive to learning, I expect the highest level of courtesy and professional behavior from every student. In particular, be punctual and **turn off all audible ringers on phones and other electronic devices during class.**

## **Additional Information:**

### **1. Missing the Final Exam Due to Illness**

- Missing the final exam is a very serious matter which automatically results in a zero mark for the exam itself and possibly a failing mark for the course. Read the department policy on deferred final exams <https://uwaterloo.ca/economics/current-undergraduates/policies-and-resources/deferred-final-exam-policy>
- No deferred final exam will be provided for students who missed all the exams (including the final exam) in this course.

### **2. Submissions of Exam Papers**

- Late submission of exam papers is not accepted and missed submission will receive zero marks for whatever reason.
- Exam papers must be submitted in whole and on time in the exam room. Exam papers (a) not submitted on time or (b) submitted with missing pages or (c) submitted elsewhere or (e) not received at all will receive zero marks for whatever reason.

### **3. Fee-Arranged Issues**

Students are responsible for administrative matters concerning their course registration including fee arrangements. No make-up work or remedies will be given for losses of access to LEARN and academic consequences arising from administrative issues with the Registrar's Office.

### **4. Classroom Protocols**

- Turn off all handheld devices and put them away for the duration of the lecture. Laptop computers may only be used to view lecture material. Off-task use (e.g., Facebook, texting, other) will result in your device being confiscated for the class and/or being asked to leave the classroom for all or part of the class or course.
- Photographic devices are not permitted in class due to copyright and privacy issues.
- In order to maintain a learning environment in this classroom, the highest level of courtesy and professional behaviour is expected from every student.

## **University Statements**

### **1. Cross-Listed Courses**

Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

### **2. Academic Integrity**

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

**Discipline:** A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have

occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 – Student Discipline, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 – Student Petitions and Grievances, Section 4, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>

**Appeals:** A student may appeal the finding and/or penalty in a decision made under Policy 70 – Student Petitions and Grievances (other than regarding a petition) or Policy 71 – Student Discipline if a ground for an appeal can be established. Read Policy 72 – Student Appeals, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

Academic Integrity website (Arts):

[http://arts.uwaterloo.ca/arts/ugrad/academic\\_responsibility.html](http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html)

Academic Integrity Office (University): <http://uwaterloo.ca/academicintegrity/>

### **3. Accommodation for Students with Disabilities:**

The AccessAbility Services (AS) Office, located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS Office at the beginning of each academic term.