

## ENVIRONMENTAL ECONOMICS

Econ 4545  
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Fall 2016, August 23, 2016  
Course Description

Environmental Economics (Econ 4545) considers the *efficient* and *equitable* use of society's environmental resources, which like all resources are scarce. Environmental resources include the atmosphere, water, water bodies and waterways, soils, undeveloped land, wilderness, many parks (but not Disneyland), wildlife, genetic diversity, and ecological systems.

The environment is where we get the stuff that sustains us and determines, to a large extent, the quality of our lives; the environment is also where we must dump our wastes.

Environmental economics accepts, without much discussion, efficiency and equity as the goals for environmental policy. Note that many others (some environmentalists, politicians, environmental studies majors, etc.) do not accept efficiency and equity as the appropriate determinants of whether an environmental policy is good or bad. Throughout the term, I will mention and discuss some of these other perspectives.

Environmental economics is a course in applied *welfare economics*: how to increase the welfare of society. The primary economic goal is to make society better off by increasing the “well-faring” of its members; it is not to improve the environment. So, making society better off might mean preserving more of an environmental resource or it might mean preserving less of it—it might mean more pollution rather than less pollution, or more of one kind and less of another kind (there are always tradeoffs).

and ecological systems. Put simply, a market failure is something inherent to the market that keeps the market equilibrium from being efficient.

My expertise is in the valuation of environmental resources. I have done much policy and legal work in this area.

Use of environmental resources will be considered from four perspectives: the market allocation (how the market would allocate environmental resources if the market were left to its own devices (no government involvement)), efficient allocations, equitable allocations (*environmental justice*), and government attempts, some successful, some not, to achieve more efficient and more equitable allocations of our scarce environmental resources.

Courses in environmental economics and courses in natural resource economics both consider natural resources but differ in that natural resource courses have historically dealt with the inter-temporal utilization (how much to use now and how much to save for the future) of conventional

renewable and nonrenewable natural resources such as energy, minerals, trees and fish; whereas environmental courses have considered pollution and other environmental issues, historically from a static perspective. This historical distinction is blurring.

Before we begin, I want to make a few comments about what economics is not. Economics is not about making money or how to run a firm. Economics is the study of the allocation of society's scarce resources. Economics per se is not pro-market or pro-government. The purpose of this course is not to argue that government action to protect the environment is bad or good; sometimes it is bad, sometimes it is good, often it is necessary if one wants environmental resources to be more efficiently allocated.

The purpose of this course is not to extol the virtues of the market. Markets have many virtues, but, when it comes to the environment, they also have many faults. In one respect, this course could be described as a course on market failures and government actions to correct those failures.

An important component of environmental economics is estimating the costs, in \$, of decreasing pollution, with the following example. The cost of decreasing pollution from 100 to 90 units is \$100,000. The cost of decreasing pollution from 90 to 80 units is \$200,000. The cost of decreasing pollution from 80 to 70 units is \$300,000. The cost of decreasing pollution from 70 to 60 units is \$400,000. The cost of decreasing pollution from 60 to 50 units is \$500,000. The cost of decreasing pollution from 50 to 40 units is \$600,000. The cost of decreasing pollution from 40 to 30 units is \$700,000. The cost of decreasing pollution from 30 to 20 units is \$800,000. The cost of decreasing pollution from 20 to 10 units is \$900,000. The cost of decreasing pollution from 10 to 0 units is \$1,000,000.

of what we put back into the environment (“what goes in must come out”). This fact is often referred to as *materials balance*. The same balance holds for energy—we change energy’s form but do not create or destroy energy. Production and consumption change the form of matter and the form of energy but, with the exception of nuclear reactions, no matter or energy is created or destroyed. The word consumption is a misnomer; when you eat a Big Mac, nothing is destroyed. Materials balance is of critical importance but it is not stressed in your other economics courses.

### Details

My hope is that the end of the semester you conclude the course was difficult but worth the effort.

*Web page:* My web site is located at <http://www.colorado.edu/Economics/morey/index.html> . From it you can link to the web page for Econ 4545, or you can go directly to the web page for the course, <http://www.colorado.edu/Economics/morey/4545/4545home.html> You can always find my web page and the web page for the course by Googling “Edward Morey”

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http://www.colorado.edu/Economics/morey/4545/4545home.html





take a day or so for me to get back to you.

I will often communicate important information (e.g. announce a quiz) to you by email sent to your CU email account. I have learned from years of experience to not send emails to addresses like

*Readings:*

There is no course text book. e B 0 c ( ) - 1 0 ( r ) 1 ( e ) 4 (

*Applications/topics:* Some of the applications/issues/topics we are likely to consider include extinction and animal preservation, pollution permits, parks and wilderness areas, valuation (travel-cost, contingent valuation, and choice experiments), global warming, conservation, mobile-source pollution (from cars and trucks), and acid deposition.

*Class format:* View the readings and my lectures as complements rather than substitutes.

A lot of the basic material that you will be responsible for will be presented in lecture and is material that is not explicitly in the readings. Class time will be devoted to lectures, problem solving and discussion. It is important that you do the appropriate readings before each lecture. Some class time will be devoted to working on the review questions. Prepare for these review sessions by answering the questions to the best of your ability. I will ask a lot of questions and will sometimes offer extra credit for correct answers. Expect to be called on.