

Toward Climate Change Awareness

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OBJECTIVE: By providing a flexible learning network of interconnected classes, modules, tools and REU opportunities Oregon State is creating an environment that will contribute to a better understanding of climate change solutions. We focus on two concerns:

- How to present the materials in a way that reflects the **integration of climate change with fundamental economic thinking and concepts**
- How to open up the dialogue such that **innovative and proactive discussions dominate the academic landscape**

We address these concerns by making climate change issues a focus in all aspects of the department's **research, teaching, and outreach.**

WILLAMETTE WATER 2100

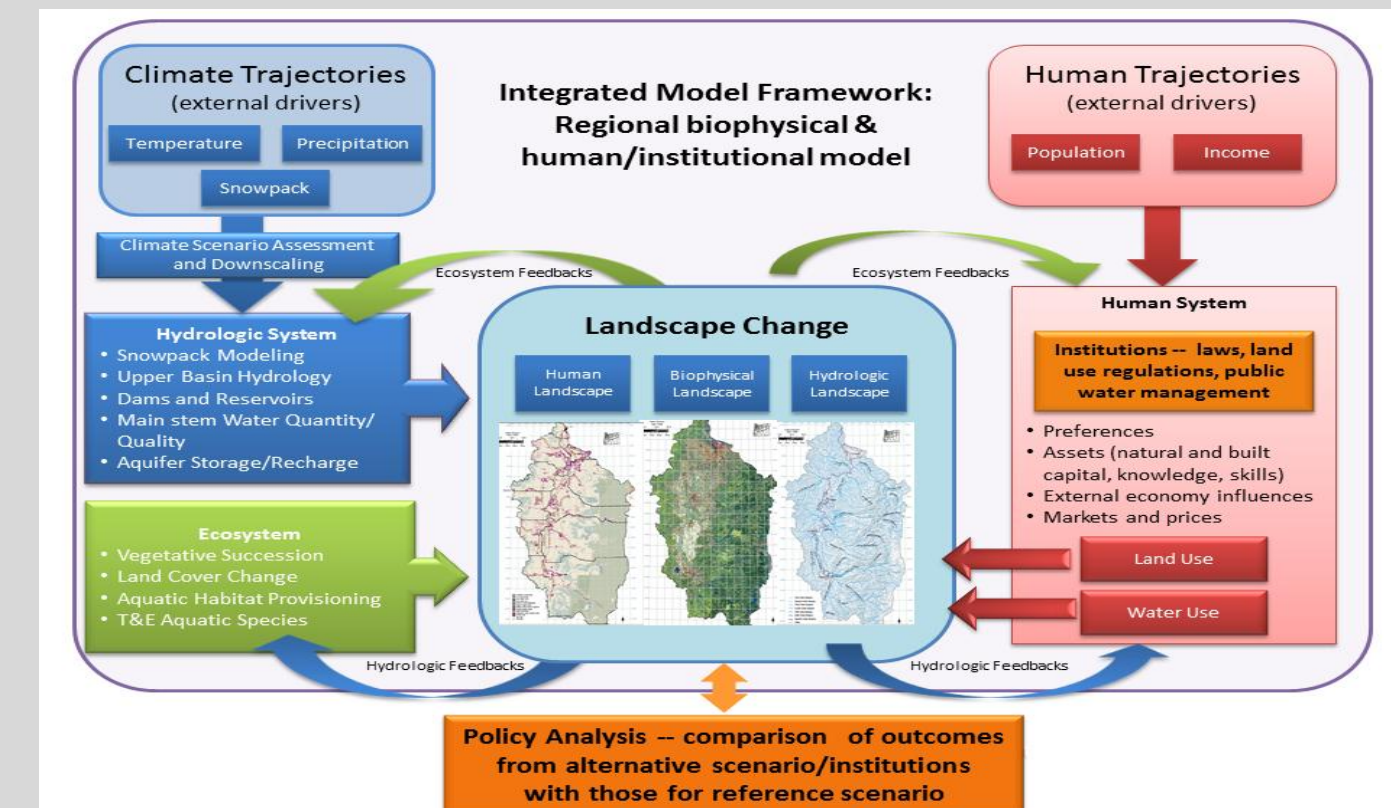


WW2100 is a collaborative effort between researchers from Oregon State University, the University of Oregon, and Portland State University. This program, which is funded by the National Science Foundation, evaluates how climate change, population growth, and economic growth will change the availability and the use of water in the Willamette River Basin on a decadal to centennial timescale.

Program Goals:

- Where are climate change and human activity most likely to create water scarcity?
- Where will water scarcity have the biggest impact on ecosystems and communities?
- What policy/management tools will best help communities prevent, mitigate, or adapt to water scarcity?

WW2100 represents both an interdisciplinary **research** collaboration as well as an **outreach** tool intended for policy makers



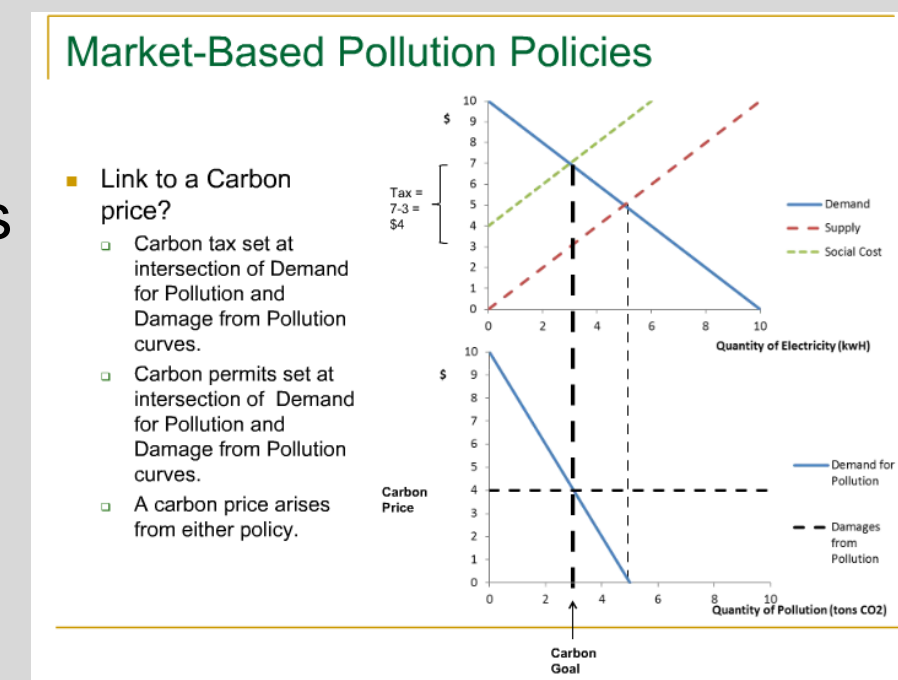
UNDERGRADUATE TEACHING

AREC 250 - Introduction to Environmental Economics:

Introduction to Environmental Economics is an introductory microeconomics class. Lectures and the textbook are supplemented with William Nordhaus' *Climate Casino*. Participation in weekly discussions drawn from *Climate Casino* helps students think critically about climate change.

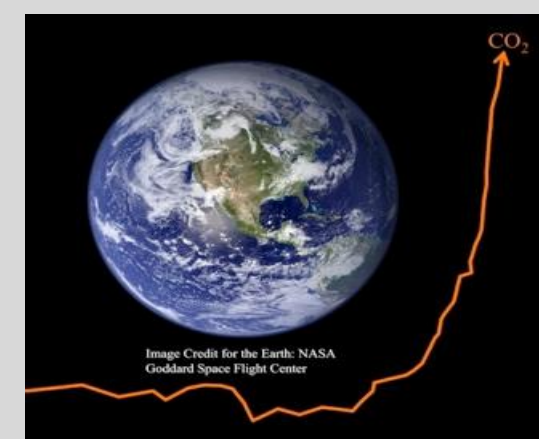
Class objectives:

- Get students thinking about how climate change and economics relate
- Introduce ideas of policy intervention for climate change mitigation and adaptation
- Give students the skills to critique current approaches to environmental and climate regulation






ATS 320 - The Changing Climate:

Graduate NNF fellow Cassie Finer gave a one-day guest lecture about the economics of climate change policy to a class of Atmospheric Sciences undergraduate students. The guest lecture allows graduate students to practice teaching, while exposing undergraduate students to the relationship between economic theory and climate change.



GRADUATE TEACHING AND RESEARCH

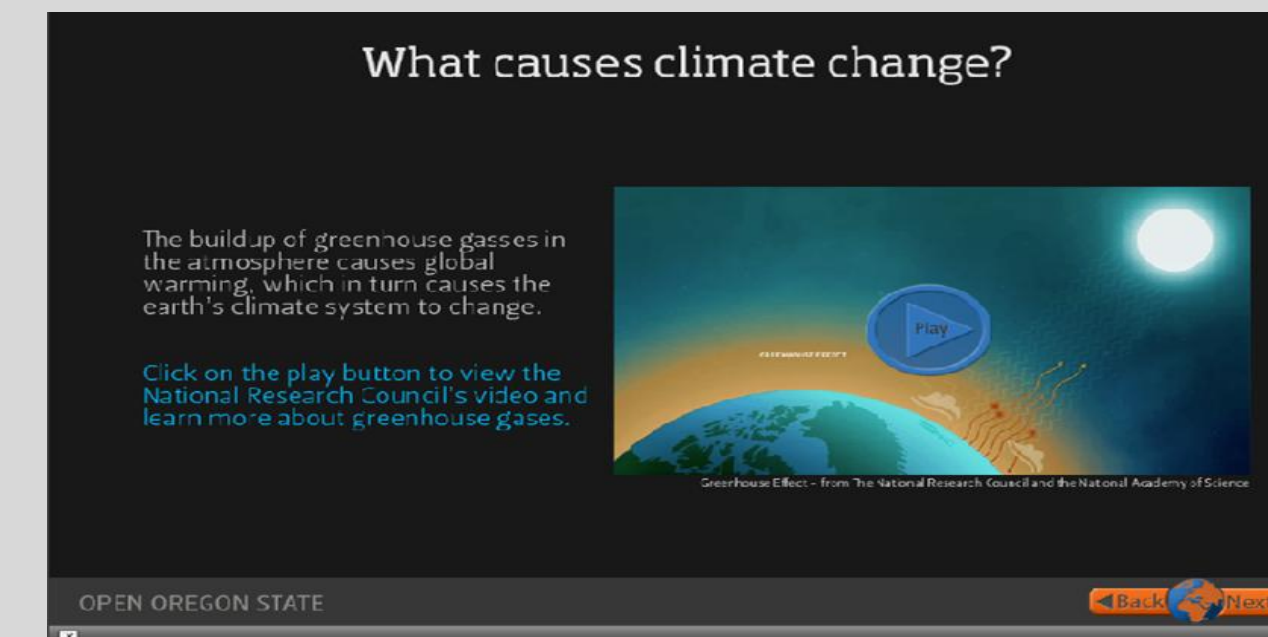
NNF FELLOWS:

-  Annah Latane (MS student) – In June 2015 she completed her masters thesis titled Exploration of Water Quality in the United States using an Environmental Kuznets Curve Framework, which incorporated climate change as a factor that can impact water quality and water quality regulations.
-  Cassie Finer (PhD student) – NNF research focuses on valuing the effects of climate change and climate risk on land markets.
-  Sara Wynn (MS student) – is new to the NNF program this spring. Her current research is focused on Climate Smart Agriculture technology adoption and outcomes for small farmers in Tanzania.

ENVIRONMENTAL AND RESOURCE ECONOMICS WORKING GROUP:

The ERE Working Group is an informal, bi-weekly meeting of graduate students and faculty at Oregon State University with an interest in environment and resource economics. At each meeting one individual presents their research, regardless of completion, and the group discusses. This meeting is not restricted to just the Applied Economics department, and often has attendees from other departments.

CLIMATE LEARNING MODULES



The Oregon State University Applied Economics Department, Extension Ecampus, and Regional Approaches to Climate Change in the Pacific Northwest project are working to develop a set of climate change learning modules. These modules are intended to be an accessible introduction to the topic of climate change, made available to the University and the general public for both **teaching** and **outreach** purposes.

They will cover:

- The physical effects of climate change
- Possible adaptation and mitigation strategies
- The role of economics in both the causes and responses to climate change



a policy research collaboration
Center for Agricultural & Environmental Policy at Oregon State University
University of California Agricultural Issues Center

OreCal is a **research** and **outreach** collaboration between Oregon State University's Center for Agricultural and Environmental Policy and the University of California Agricultural Issues Center whose **mission** is to:

Improve public and private decision making by providing the highest quality, objective economic analysis of critical public policy issues concerning agriculture, natural resources, energy, food systems, technology, and the environment.

A few examples of issues briefs produced by OreCal:

- "What are the Major Climate Risks for Agriculture in the Pacific Northwest?" July 2015
- "The 2014 Farm Bill: What are the Major Reforms and How do they Affect Western Agriculture?" April 2014
- "How do Extreme Climate Events Affect Specialty Crops and Irrigation Management?" February 2014

TOA-MD: TRADEOFF ANALYSIS PROJECT

The Tradeoff Analysis model for Multi-Dimensional impact assessment (TOA-MD) supports informed policy decision making by:

- Analyzing agricultural technology adoption, social and environmental impact assessment, and ecosystem services changes
- Providing a tool to analyze Climate Smart Agriculture practices and their benefits for farm households and the environment
- Allowing policy makers to form decisions when data, time, and other resources are limited

Oregon State's TOA-MD team of researchers collaborates with numerous development agencies including the WorldFish Center, International Livestock Research Institute, and the International Potato Center.



AgBiz Logic™ is a suite of economic, financial, and environmental decision tools for businesses that grow, harvest, package, add value, and sell agricultural products. AgBiz Logic™ is used by undergraduate students in OSU's Student Engaged Business Assessment Program to help farmers conduct financial analysis, while exposing the students to Pacific Northwest agribusiness.

"It measures the profitability and feasibility of actions such as changing management practices, investing in new equipment, or changing crop rotations. Our goal is to allow for better long term decision making by agricultural producers in a changing climate."



Jenna Way, MS Student
Department of Applied Economics

Environmental Impacts of Investments

Notes: Assessing the profitability of changing from a wheat fallow rotation to include a biofuel crop and an annual cropping system, with purchasing additional combine and tractor or custom hiring harvest.

