



Oregon State
University

Hyrbridizing “Introduction to Environmental Economics and Policy” AEC 250

David Lewis

lewisda@oregonstate.edu

The course

- Intro level course
- Principles of microeconomics with applications to the environment
- Mostly freshmen and sophomores
- Many students who major in natural and environmental sciences, very few business majors

OSU Hybrid Courses

- A hybrid ("blended") course integrates regularly scheduled on-site classroom meetings with significant online, out-of-classroom components that replace regularly scheduled class meeting time. A substantial portion of the course learning activities are delivered online; face-to face meeting time is generally reduced by 30 to 70% compared to a traditional on-campus course.

OSU Hybrid Courses

- More than 380 OSU courses officially carry the hybrid schedule type. Hybrid courses are offered by 11 OSU colleges and range from 360-student intro-level courses to graduate courses. The number of Corvallis campus hybrid course sections grew 36% to 154 sections during the 2016-17 academic year. Since 2012 when OSU formally created the hybrid course type, 150 instructors have taught Corvallis hybrid courses with combined enrollments of more than 25,000 students.

Basic philosophy behind my course

- Online
 - Video lectures (each are 15 min. max)
 - Low-stakes quizzes
 - Discussion board
 - Homework assignments (Aplia system)
- Face-to-Face
 - Classroom experiments
 - Group problem-solving
 - Q&A on challenging lecture concepts
 - Discussion (current events, online board, etc.)

Survey of OSU faculty (2016) – Most effective features of hybrids

- Student-to-student interaction in both classroom and online environments.
- Lectures of less than 15 minutes interspersed with other class activities
- Prompt and specific feedback given on assessments (e.g., quizzes, papers, projects)
- Real-world applications to connect theory to practice
- Active learning (e.g., think-pair-share, problem-solving exercises, group work)

Source: Cub Kahn, OSU Hybrid Initiative Coordinator,
cub.kahn@oregonstate.edu

Survey of OSU faculty (2016) – Most effective features of hybrids

- Group activities that have both an in-class and out-of-class component
- Learning activities outside of class prepare students to participate in class meetings
- Online content/learning activities referred to during face-to-face meetings to reinforce
- Student-to-instructor interaction in both the classroom and online environments
- Integration between classroom and online learning environments
- Classroom discussions

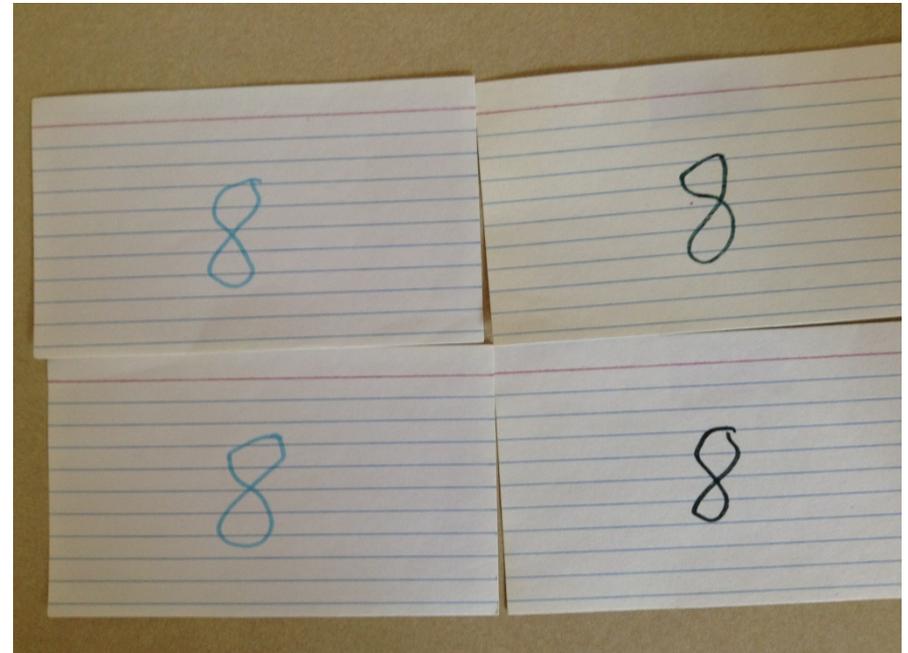
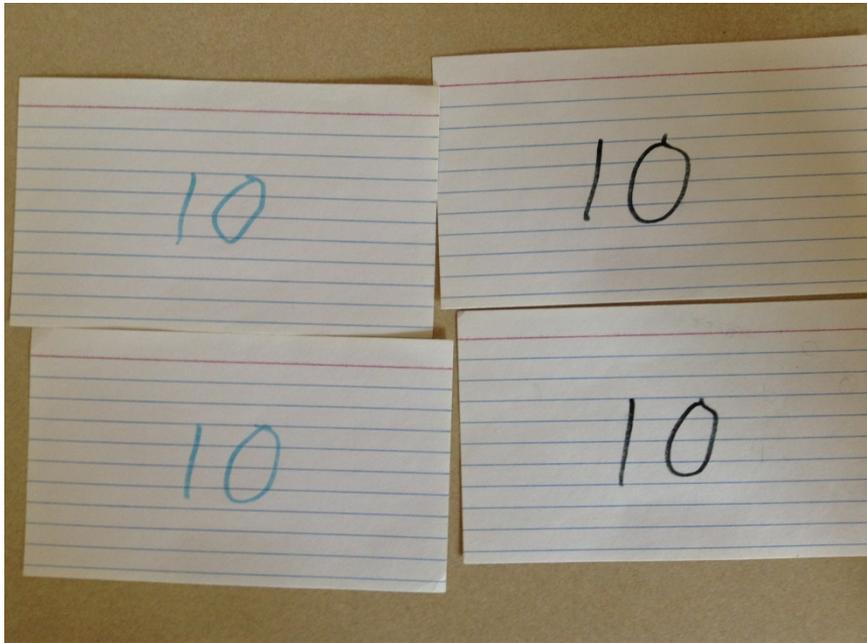
Source: Cub Kahn, OSU Hybrid Initiative Coordinator,
cub.kahn@oregonstate.edu

Basic philosophy behind my course

- Online
 - Video lectures (each are 15 min. max)
 - Low-stakes quizzes
 - Discussion board
 - Homework assignments (Aplia system)
- Face-to-Face
 - Classroom experiments
 - Group problem-solving
 - Q&A on challenging lecture concepts
 - Discussion (current events, online board, etc.)

Classroom Experiment - Externalities

- Each team receives four cards, two black cards and two blue cards – I usually put a number on indicating team name.



Classroom Experiment - Externalities

- Each team receives four cards, two black cards and two blue cards.
- 5 rounds.
- During each round, groups have to determine which cards to give up.
 - Each group begins with 200 points.
 - Each blue card you retain costs you -2 points.
 - Each black card you retain costs you 0 points.
 - For every blue card I collect, each group must take off 1 point from their score.

What usually happens?

- An example from a recent class:
 - 15 teams
 - Round 1: 23 blue cards collected
 - Round 2: 25 blue cards collected
 - Round 3: 20 blue cards collected
 - Round 4: 18 blue cards collected
 - Round 5: 29 blue cards collected
- What this illustrates? People tend to ignore external costs imposed on others (externalities)

Basic philosophy behind the course

- Online
 - Video lectures
 - Low-stakes quizzes
 - Discussion board
 - Homework assignments (Aplia system)
- Face-to-Face
 - Classroom experiments
 - Group problem-solving
 - Q&A on challenging lecture concepts
 - Discussion (current events, online board, etc.)

Group problem-solving

- Example/ Consider the competitive market for natural gas that begins in long-run equilibrium. Now suppose that the price of renewable energy (a substitute for natural gas) decreases because of a technological advance. Answer the following questions about the natural gas market.
 - Draw two graphs, side by side, illustrating the short-run effects of the fall in renewable energy prices on the natural gas market and an individual natural gas firm's output and profit. Use a graph with a 'typical' set of average total cost (ATC) and marginal cost (MC) curves.
 - Briefly explain the *long-run* effects of the fall in renewable energy prices on the natural gas market by using a graph (or graphs) to show the likely effects on the profits of natural gas firms, and the market price and market quantity of natural gas.

Discussions

- Example/ Suppose the State of Oregon is successful in establishing a new carbon price, which generates an implicit tax on goods whose production causes carbon emissions. The price that consumers pay for electricity from fossil fuels will rise. Come up with at least one related market that would be impacted *indirectly* from the higher price that consumers pay for electricity from fossil fuels. Use the supply-and-demand model to analyze changes in the indirectly affected market.

For more:

- <http://ctl.oregonstate.edu/hybrid-learning>
- Contact: Cub Kahn, OSU's Hybrid Course Initiative Coordinator
(cub.kahn@oregonstate.edu)