

## ECON 3535: Course Outline

Week	Dates	Tuesday	Thursday	Assignments
1	1/17 - 1/19	<a href="#">Syllabus</a> + Intro	Topic 1 - Economic Fundamentals	
2	1/24 - 1/26	<a href="#">Lecture 2</a>	<a href="#">Lecture 3</a>	
3	1/31 - 2/2	<a href="#">Lecture 4</a>	<a href="#">Lecture 5</a>	
4	2/7 - 2/9	<a href="#">Lecture 6</a>	<a href="#">Lecture 7</a>	
5	2/14 - 2/16	Review	<i>Midterm</i>	Math Assignment
6	2/21 - 2/23	Topic 2 - Energy Resources	<a href="#">Lecture 9</a>	
7	2/28 - 3/2	<a href="#">Lecture 10</a>	<a href="#">Lecture 11</a>	
8	3/7 - 3/9	<a href="#">Lecture 12</a>	<a href="#">Lecture 13</a>	
9	3/14 - 3/16	Topic 3 - Pollution and Climate Change	<a href="#">Lecture 15</a>	
10	3/21 - 3/23	<a href="#">Lecture 16</a>	<a href="#">Lecture 17</a>	
11	3/28 - 3/30	<i>No Class Spring Break</i>	<i>No Class Spring Break</i>	
12	4/4 - 4/6	Topic 4 - Valuation and Non-Energy Resources	<i>Midterm</i>	
13	4/11 - 4/13	<a href="#">Lecture 19</a>	<a href="#">Lecture 20</a>	Writing Assignment
14	4/18 - 4/20	<a href="#">Lecture 21</a>	<a href="#">Lecture 22</a>	
15	4/25 - 4/27	<a href="#">Lecture 23</a>	<a href="#">Lecture 24</a>	
Final	05/06 1:30-4pm			<i>Final Exam</i>

## Unit 1: Economic Fundamentals

### LECTURE 1

- Intro to Class
- Prisoner's Dilemma Review
- Economic tools for analyzing natural resource problems

#### *Readings for this lecture*

- [Robert Frank's The Darwin Economy](#)

### LECTURE 2

- Discounting and Present Value
- Resource taxonomy
- Recyclable resources

#### *Readings for this lecture*

- "Static Efficiency", page 21
- "Relating Optimality to Efficiency", page 48
- "Comparing Benefits and Costs Across Time", page 49
- "Choosing the Discount Rate", page 60
- "Resource Taxonomy", page 124

### LECTURE 3

- Two-period model with constant MC and fixed supply
- Mineral two-period model

#### *Readings for this lecture*

- "A Two-Period Model", page 108
- [Michael Greenstone's Managing Climate Risk](#) (online version).

## LECTURE 4

- Marginal user cost
- Markets
- Efficiency
- Welfare theorem

### *Readings for this lecture*

- "A Two-Period Model", page 108
- "Efficient Intertemporal Allocations", page 127

## LECTURE 5

- Property rights
- Coase theorem
- Bargaining

### *Readings for this lecture*

- "Externalities as a Source of Market Failure", page 25
- Example 2.2 Shrimp Farming Externalities in Thailand, page 27
- "Coase Theorem", page 36

## LECTURE 6

- Policy tools
- Local pollutants
- Policy comparisons
- Numerical example

### *Readings for this lecture*

- [Ronald Coase and the Misuse of Economics](#) (online version).
- "The Command-and-Control Policy Framework", page 358
- "Command and control vs market-based policies", page 358

## LECTURE 7

- Numerical Exercise
- Taxes and Deadweight Loss
- Corrective Taxes and Subsidies
- Growth and Development
- Trade

### *Videos*

- [Taxes and Deadweight Loss](#)
- [Pigouvian Taxes](#)

### *Readings for this lecture*

- "Trade and the Environment", page 480
- Example 20.3 The Natural Resource Curse
- [Carbon Taxes Won't Do Enough to Slow Global Warming](#) ([online version](#)).

Math Assignment due 2/14 at 11:59pm

## Unit 2: Energy Resources

### LECTURE 8

- Energy Overview
- Electricity Industry

*Readings for this lecture*

- "Will we ever stop using fossil fuels?", pages 117-120
- "Electricity" and Examples 7.5 and 7.6, pages 158

### LECTURE 9

- Merit Order
- Monopoly and Regulation

*Readings for this lecture*

- Renewable energy - the global transition, explained in 12 charts (online version)

### LECTURE 10

- Coal
- Carbon capture and storage
- Nuclear
- Natural Gas

## LECTURE 11

- Renewables overview
- Wind
- Solar

### *Readings for this lecture*

- [Renewables to Account for a Third of Global Power Generation in 2022 \(online version\)](#).
- [Renewables Are Expanding at an Astounding Pace. But It's Still Not Enough to Meet Climate Goals \(online version\)](#)
- Interview with NREL Researcher: [Solar power's greatest challenge was discovered 10 years ago. It looks like a duck. \(online version\)](#).

## LECTURE 12

- Energy storage
- Demand response
- Hydroelectric

### *Readings for this lecture*

- [Energy Storage](#)
- [Demand Response](#)

### *Videos*

- [The Future of Energy Storage Beyond Lithium Ion](#)

## LECTURE 13

- Biofuels
- Transportation

### *Readings for this lecture*

- "CAFE Standards" and "Alternative Fuels and Vehicles", page 380 and 385

## Unit 3: Pollution, Climate Change, and Policy

### LECTURE 14

- Climate change
- Science overview
- Policy overview

#### *Readings for this lecture*

- [The Uninhabitable Earth](#) (online version).

### LECTURE 15

- Policies for local air pollution
- US Acid Rain Program
- Programs in France, Sweden, Japan
- International air pollution policies

#### *Readings for this lecture*

- [NYTimes' The Daily: Joe Biden's Climate Plan](#)

#### *Videos*

- [A Brief History of Environmental Justice](#)
- Example: Cancer Alley [Why This Town is Dying From Cancer](#)

### LECTURE 16

- Paris Agreement
- Country-specific climate change policies

#### *Readings for this lecture*

- [Most countries aren't hitting 2030 climate goals, and everyone will pay the price](#) (online version).
- [China's Pledge to Be Carbon Neutral by 2060 - What It Means](#) (online version).
- [John Kerry, Biden's Climate Czar, Talks About Saving the Planet](#) (online version).

## LECTURE 17

- Environmental taxes
- Double dividend hypothesis

### *Readings for this lecture*

- [The Trump Administration Is Reversing More Than 100 Environmental Rules. Here's the Full List. \(online version\).](#)
- TBD: about Biden's Climate Efforts



## Unit 4: Valuation Methods and Non-Energy Resources

### LECTURE 19

- Valuation overview
- Cost/benefit analysis
- Efficiency

*Readings for this lecture*

- Chapter 3

### LECTURE 20

- Different types of value
- Stated preference methods and biases
- Revealed preference methods

*Readings for this lecture*

- Chapter 4

### LECTURE 21

- Ecosystem services
- Bioeconomic systems
- Static fisheries

*Readings for this lecture*

- Video: [The economic, social and icon value of the Great Barrier Reef](#)
- [What Is The Real Value Of The Great Barrier Reef?](#) (online version)
- [What bees can teach us about the real value of protecting nature](#) (online version).

## LECTURE 22

- Dynamic fisheries
- Open access fisheries

*Readings for this lecture*

- First half of chapter 12 (Until you get to the dynamic fisheries model)

## LECTURE 23

- Forestry

*Readings for this lecture*

- Chapter 11

Writing Assignment due 4/15 at 11:59pm

## LECTURE 24

- Land use

*Readings for this lecture*

- Chapter 10

## LECTURE 25

- Food insecurity
- Water
- Waste and Recycling

*Readings for this lecture*

- Chapter 9
- [Is Recycling Worth It?](#) ([online version](#)).