

## **Environmental Justice: The Economics of Race, Place and Pollution**

**Time** MW 10:05 – 11:20

**Location** Social Sciences 109

**Instructor** Christopher Timmins  
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**Office Hours** TBD (Timmins)  
TBD (Wang)

### **Course Summary**

We observe minorities, people of color, and low-income households bearing a disproportionate burden from environmental pollution. Since the Clinton administration, addressing this environmental injustice has been among the policy objectives of the Environmental Protection Agency (EPA); the goal is to provide fair treatment and equal protection from pollution regardless of race, color, or income. This course examines ways in which environmental injustices may arise out of discriminatory behavior and/or market forces founded on individual, firm, and government incentives. We first set the theoretical framework used to document and explain disproportionate exposures. Based on this foundation, we then review existing empirical evidence through case studies and evaluate competing explanations of sources of injustice. The objective of this course is to enable students to examine environmental justice issues using an economics framework, which provides a different perspective for evaluating policies to address environmental inequities observed today.

### **Prerequisites**

ECON 201 (Intermediate Microeconomics I)  
ECON 205 (Intermediate Microeconomics II)  
ECON 208 (Introduction to Econometrics)

## **Requirements**

Successful completion of the course will require the following: (1) Discussion questions that students will be asked to complete (in writing) prior to or at the end of class depending on the specific assignment. Discussion questions will be based on readings from the economics and environmental literatures. Students will be expected to have done all readings and to participate in classroom discussions. (2) Empirical exercises that analyze EJ topics using environmental and socio-demographic data. (3) Group presentation of an EJ case study (to be assigned in class). (4) Paper on an approved EJ topic. (5) Presentation of the EJ paper prospectus and paper.

## **Grading**

Grades will be determined based on the following allocation:

Discussion Question Write-ups <i>(2 lowest write-up grades dropped)</i>	40%
Empirical Exercise: Ecological Fallacy	10%
Empirical Exercise: Gentrification	10%
Case Study Presentation	10%
Final Paper <i>(15 pages, double-spaced)</i>	20%
Paper Presentations	10%

## **Stata**

We will use Stata to carry out statistical analyses in class on a number of occasions. Rather than moving the class to a computer lab on these occasions, we will instead make Stata available to you for use on a laptop computer. Licenses can be acquired from the following link: <https://public.econ.duke.edu/stata>. Serial number and authorization information will be distributed in class.

## **EJ Paper**

You are to identify an environmental justice topic not covered in class and analyze the issue using the economic frameworks developed in class. The paper will be due by 5pm on the final day before the start of the reading period. Dates for preliminary presentations are listed on the class schedule below.

A detailed grading guideline for the paper will be provided at a later date, including point allocations for deadlines that count toward the total grade of the paper.

## **Duke Reader Project**

The Reader Project offers Duke students the opportunity to get feedback on a class writing project from a Duke alum (and occasionally a Duke employee) who has the background to serve as an authentic member of the target audience for a student writing project. Participating students are paired with a reader who is willing to provide feedback on drafts of the student's work-in-progress. The writing projects can range from scholarly/research writing in a particular discipline to forms of communication intended for a broader audience; you will have the option of participating in conjunction with your EJ paper.

Students meet with their reader two or three times during the semester to get feedback on drafts of their work. This feedback can help students better understand the conventions and expectations for a particular kind of writing, to anticipate the needs of readers, and to revise their writing to make it more effective for the intended audience. Students who participate regularly report that their work is better and that interacting with a reader outside of the classroom increases their engagement in the assignment. Many also note that they appreciated the opportunity to discuss the reader's own professional life as a window into the field.

Interested students will need to sign-up at [dukereaderproject.org](http://dukereaderproject.org) by mid-September (details to come later). We are anticipating that students will interact with their assigned reader on three occasions: (i) late September (discuss research idea), (ii) late October (hypothesis development and evidence), and (iii) November 16<sup>th</sup> (draft due for discussion between November 18-20).

## **Late Assignments**

Late work (other than discussion question write-ups) will be accepted, but an appropriate penalty will be imposed based on how late it is. Please plan ahead and complete assignments on time. Late write-ups for discussion questions **will not** be accepted.

## **Readings**

The majority of the readings for the class will be drawn from journal articles, which will be made available on the course Sakai page. A few readings for group case studies will also be taken from the following books, which can be purchased online.

- Cole, Luke W. and Sheila R. Foster, *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement*, New York University Press, New York, NY, 2001.
- Bullard, Robert D., *Dumping in Dixie: Race, Class and Environmental Quality*, 3<sup>rd</sup> Ed. Westview Press, Boulder, CO., 2000.

Copies of both books will also be placed on reserve in Perkins where relevant sections can be photocopied.

## Class Schedule<sup>1</sup>

### 1. Introduction (8/24, 8/26)

#### Background & History

- Cole and Foster, Ch. 1
- Mohai, Pellow and Roberts (2009), “Environmental Justice.” *Annual Review of Environment and Resources*
- U.S. Environmental Protection Agency (2014), “Plan EJ 2014.”

#### Introduction to the nuisances (EPA information)

- ~ TSDF                      ~ TRI                      ~ Solid Waste
- ~ NPL                        ~ NATA                  ~ Brownfields
- ~ Criteria Pollutants    ~ Pesticides

### 2. Framework for Analysis (8/31, 9/2, 9/7, 9/9)

#### Gentrification & EJ “Pyramid”

- Hedonics, Housing Demand and Supply
- Broken windows
- Peer effects, Starbucks effect
- Banzhaf and McCormick (2007), “Moving Beyond Cleanup: Identifying the Crucibles of Environmental Justice.” *NCEE Working Paper*

*Empirical Exercise (Part I): Omitted Variables Bias (9/2)*

*Empirical Exercise (Part II): Gentrification (9/9)*

### 3. Case Study Presentations (9/14)

Groups of two, students will be assigned case study for presentation.

- Kettleman City (*Cole and Foster, Preface*)
- Chester PA (*Cole and Foster, Ch. 2*)
- Buttonwillow (*Cole and Foster, Ch. 4*)
- Houston Northwood (*Bullard, Ch. 3*)
- West Dallas (*Bullard, Ch. 3*)
- Institute WV (*Bullard, Ch. 3*)
- Alsen, LA (*Bullard, Ch. 3*)
- Emelle-Sumter AL (*Bullard, Ch. 3*)

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<sup>1</sup> Warning – with this being the first time that this class is taught, the class calendar may undergo some changes.

#### **4. Documenting Exposure to Nuisances (9/16, 9/21, 9/23)**

##### Methods

- Mohai and Saha (2006), “Reassessing Racial and Socioeconomic Disparities in Environmental Research.” *Demography*

##### Disproportionate Siting Discussion Papers (9/21)

- Anderton et al. (1994), “Environmental Equity: The Demographics of Dumping.” *Demography*
- Brooks and Sethi (1997), “The Distribution of Pollution: Community Characteristics and Exposure to Air Toxics.” *Journal of Environmental Economics and Management*
- Sadd, Pastor, Boer, and Snyder (1999), “ ‘Every Breathe You Take...’: The Demographics of Toxic Air Releases in Southern California.” *Economic Development Quarterly*

*Empirical Exercise: Ecological Fallacy (9/23)*

#### **5. Alternative Explanations: Disproportionate Siting (9/28, 9/30)**

- Helfand and Peyton (1999), “A Conceptual Model of Environmental Justice.” *Social Science Quarterly*
- Been (1994), “Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics.” *The Yale Law Journal*
- Hamilton (1995), “Testing for Environmental Racism: Prejudice, Profits, Political Power?” *Journal of Policy Analysis and Management*
- Wolverson (2009), “The Role of Demographic and Cost-Related Factors in Determining Where to Plants Locate – A Tale of Two Texas Cities.” *Working Paper*

*Discussion: Cerrell Report (9/30)*

**Paper Prospectus Presentations (10/5):** 5 minute Powerpoint presentation outlining topic that has been approved by instructor.

## 6. Alternative Explanations: Sorting (10/7, 10/14)

- Oakes et al. (1996), “A Longitudinal Analysis of Environmental Equity in Communities with Hazardous Waste Facilities.” *Social Science Research*
- Been and Gupta (1997). “Coming to the Nuisance or Going to the Barrios – A Longitudinal Analysis of Environmental Justice Claims.” *Ecology LQ*
- Pastor, Sadd, and Hipp (2001), “Which Came First? Toxic Facilities, Minority Movin-In, and Environmental Justice.” *Journal of Urban Affairs*
- Depro, Timmins, and O’Neil (2014), “White Flight and Coming to the Nuisance: Can Residential Move-In Explain Environmental Injustice?” *Working Paper*

*In-Class Exercise: Tiebout Sorting (10/14)*

## 7. Alternative Explanations: IGT & Poverty Traps (10/19, 10/21)

- Corcoran (1995), “Rags to Rags: Poverty and Mobility in the United States.” *Annual Review of Sociology*
- Currie and Moretti (2007), “Biology as Destiny? Short- and Long-Run Determinants of Intergenerational Transmission of Birth Weight” *Journal of Labor Economics*
- Durlauf (2006), “Groups, Social Interactions, and Inequality,” *Poverty Traps*. Princeton, NJ: Princeton University Press

*Discussion: Black, Devereux and Salvanes (2007), “From the Cradle to the Labor Market? The Effect of Birth Weight on Adult Outcomes.” Quarterly Journal of Economics (10/21)*

## 8. Alternative Explanations: Government Actions (10/26, 10/27, 11/2)

- Jenkins and Maguire (2009), “State hazardous and solid waste taxes: Understanding their Variability.” *Working Paper*
- Lavelle and Cole (1992), “Unequal protection: the racial divide in environmental law.” *National Law Journal*
- Gray and Shadbegian (2004), “‘Optimal’ pollution abatement—whose benefits matter, and how much?” *Journal of Environmental and Economic Management*
- Viscusi and Hamilton (1999), “Are regulators Rational? Evidence from Hazardous Waste Cleanup Decisions,” *American Economic Review*
- Worsham (1999), “Disparate impact lawsuits under Title VI, Section 602: Can a legal tool build environmental justice.” *BC Environmental Affairs Law Review*

*Discussion: Sigman (2001). “The Pace of Progress at Superfund Sites: Policy Goals and Interest Group Influence.” Journal of Law and Economics.*

**Paper Updates (11/4):** Five-minute Powerpoint presentation to update class on research progress

**9. Native Americans / Indigenous Movement (11/9, 11/11)**

- Cole and Foster, Ch. 6
- Vikery and Hunter (2014), “Native Americans: Where in Environmental Justice Theory and Research?” *Working Paper*
- Leonard III (1997), “Sovereignty, Self-Determination, and Environmental Justice in the Mescalero Apache Decision to Store Nuclear Waste.” *Boston College Environmental Affairs Law Review*
- Shriver and Webb (2009), “Rethinking the Scope of Environmental Injustice: Perceptions of Health Hazards in a Rural Native American Community Exposed to Carbon Black.” *Rural Sociology*
- Zaferatos (2006), “Environmental Justice in Indian Country: Dumpsite Remediation on the Swinomish Indian Reservation.” *Environmental Management*

**10. Hurricane Katrina and Natural Disasters (11/16, 11/18)**

- Morse (2006), “Environmental Justice through the Eye of Hurricane Katrina.” *Environmental Management*
- Pastor et al. (2006), “In the Wake of the Storm. Environment, Disaster, and Race After Katrina.” *Russell Sage Foundation*

*Discussion Papers:*

- Carter, Little, Mogue and Negatu (2007). “Poverty Traps and Natural Disasters in Ethiopia and Honduras.” *World Development*.

**11. Shale Gas (11/23)**

- Timmins and Vissing (2015), “Environmental Justice and Coasian Bargaining: Role of Race and Income in Lease Negotiations for Shale Gas.” Working Paper

**Paper Presentations (11/30, 12/2):** 12-15 minute Powerpoint presentations

**Paper Due Date (12/4)**

## Summary of Empirical Exercises:

### *Omitted Variables Bias (9/2)*

- Frameworks discussed imply that gentrification is a complicated phenomenon that involves multiple forces that can change simultaneously. As researchers, we must keep this in mind when reviewing empirical work in environmental justice.
- In this empirical exercise, students will use a simple empirical exercise to demonstrate how omitted variables can impact estimated results.

### *Gentrification (9/9)*

- In this exercise, students will be instructed to empirically test for one of the hallmarks of gentrification discussed in class.
- Students will continue to use housing data near brownfield sites in to examine extent to which the housing stock of communities surrounding a brownfields site changes after a site is cleaned of its contaminants.

### *Ecological Fallacy (9/23)*

- Students will be instructed in the use of Stata to examine correlations between measurements from the National Air Toxics Assessment, race, and poverty at different levels of geography.
- Students will develop a basic understanding of linear regression and how to interpret regression coefficients. The hope is that this will provide motivation for future studies of actual econometric theory.