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<b>Class Meetings:</b>	Lecture	001	TuTh	3:30 – 5 pm	3108 Etcheverry Hall
	Sections	101	Wed	3 – 4 pm	3105 Etcheverry Hall
		102	Wed	4 – 5 pm	3105 Etcheverry Hall

## **OVERVIEW**

The work of engineers is physically embedded in nearly every aspect of modern society. Since the industrial revolution, engineers have improved the physical quality of life of countless people. This work, however, is not done, and engineering expertise, while improving the lot of many, has also left others behind. The engineers of tomorrow must invoke new and innovate approaches to tackle these intractable inequalities. This course will address one particular sort of inequality, environmental inequality, to consider how future engineers might engage with communities to address environmental pollution.

Unequal exposure to environmental hazards are the result of complex social and political processes, processes which have involved engineers at crucial junctures. Construction of pollution sources requires environmental impact statements, air quality regulations and permitting involve engineering analyses, and engineers design water quality effluent standards to manage drinking and environmental water quality downstream. When engineers are involved in projects such as these, an understanding of the social context and consequences of their work is a crucial first step toward achieving more just outcomes.

The primary purpose of this course is to teach future engineers to look beyond the technical orientation of environmental engineering and recognize the ways in which problems that are commonly defined in technical terms are at their roots deeply socially embedded. To that end, this course will engage students at the intersection of environmental justice, social justice, and engineering. Upon learning to recognize the socio-political nature of problems, students should then be able to approach solutions to these problems in ways that prioritize social justice, with an understanding of both the possibilities and limitations of technically-based engineering solutions. Topics covered will include environmental engineering as it relates to air, water, and soil contamination; environmental justice; race, class, and privilege; expertise; ethics; and engaged citizenship.

Originally created as part of UC Berkeley’s American Cultures Engaged Scholarship (ACES) program, this course promotes student learning both in the classroom as well as through

engagement with local and regional communities through partnerships with various community-based organizations. These partnerships will help students look beyond the traditional engineering methods of problem identification and solution development, processes which are in their very nature depoliticized and decontextualized. Instead students will learn to value different forms of knowledge produced within the communities that are directly impacted by environmental degradation every day. In doing so, students will come to understand the importance of engaging with problems in ways that not only stretch beyond technical approaches but in fact put social and political concerns front and center.

## **PEDAGOGICAL GOALS**

Upon completion of this course, students will:

1. Understand how the technical work of engineers is inherently social and political.
2. Evaluate the relationship between environmental engineering projects and the communities affected by those projects.
3. Assess the challenges that environmental pollution poses to different groups within society.
4. Discover how specific African American, Latino, Asian American, and Native American communities are tackling environmental hazards facing their communities.
5. Evaluate their personal ethical positions as they prepare for careers in which they will engage in projects that affect historically marginalized communities.

## **COMMUNITY PARTNERSHIPS**

UC Berkeley's American Cultures Engaged Scholarship (ACES) program was created in recognition of the fact that both the university and the surrounding communities could benefit from mutual collaboration. In addition to breaking down the traditional barriers between teaching, research, and service that exist in the university system, the ACES program was designed to value the different forms of knowledge and expertise that exist outside of the university setting. The program created a structure in which the university's high caliber research and scholarship was produced together with communities and directed towards addressing their most pressing needs, and in doing so helped to ensure that the work of university members remained relevant to society.

In the spirit of the ACES program, we will engage directly with several community-based organizations as partners. Our partners will help us understand their communities' historical experiences of engineering and environmental justice, as well as identify the ways in which future engineers might help them work toward social and environmental justice. In addition, a subset of students in this course will have the opportunity to work directly with these organizations on projects related to soil, air and/or water quality. These projects have been designed in collaboration with each organization. Details on how to get involved will be presented early in the semester.

The specific community partners that we will work with include:

**Asian Pacific Environmental Network (APEN) ([apen4ej.org](http://apen4ej.org))**

APEN brings together a collective voice to develop an alternative agenda for environmental, social, and economic justice. Through building an organized movement, they strive to bring fundamental changes to economic and social institutions that will prioritize public good over profits and promote the right of every person to a decent, safe, affordable quality of life, and the right to participate in decisions affecting our lives.

**Communities for a Better Environment (CBE) ([cbecal.org](http://cbecal.org))**

The mission of CBE is to build people's power in California's communities of color and low income communities to achieve environmental health and justice by preventing and reducing pollution and building green, healthy and sustainable communities and environments. CBE provides residents in blighted and heavily polluted urban communities in California with organizing skills, leadership training and legal, scientific and technical assistance, so that they can successfully confront threats to their health and well-being.

**Energy Solidarity Co-op (ESC) ([esc.coop](http://esc.coop))**

ESC, currently based in Oakland, CA, is a cooperative comprised of worker members, consumer members, and sustainers that work on community solar projects in disenfranchised and low-income areas of California. ESC democratizes financing and ownership of renewable energy through partnerships with the communities in which they work. These partnerships seek to empower communities through a localized governance approach that combines member equity, community investment, and knowledge transfer services to spread community-led clean power projects. ESC is working to make it possible for community residents to share in the direct economic, social, and environmental benefits of local, suitable solar sites.

**Sierra Club San Francisco Bay Chapter ([sanfranciscobay.sierraclub.org](http://sanfranciscobay.sierraclub.org))**

Through advocacy, outreach, and political organizing, the Sierra Club San Francisco Bay Chapter works to cut Bay Area emissions of greenhouse gases and protect the air that people breathe, among other goals. Recently, the Sierra Club San Francisco Bay Chapter had a major success in implementing a refinery emissions tracking rule, which mandates a yearly update from the refineries in Contra Costa County about what kinds of crude they're using, sets emissions caps, and makes refineries reduce their emissions 20% by the year 2020.

**The Watershed Project (TWP) ([thewatershedproject.org](http://thewatershedproject.org))**

Through a mix of education, community organizing, and restoration projects, The Watershed Project is dedicated to the restoration and preservation of the unique urban watersheds that make up the San Francisco Bay Area. Their Greening Urban Watersheds Initiative helps communities protect local watersheds through strategies including bioswales, rain gardens, and low impact design projects. This initiative works in predominantly African American and Latino neighborhoods in Richmond, CA that have been historically underfunded and whose stormwater infrastructure is currently subject to urban neglect.

**West Oakland Environmental Indicators Project (WOEIP) ([woeip.org](http://woeip.org))**

The West Oakland Environmental Indicators Project (WOEIP) is a non-profit organization located in West Oakland, California. WOEIP is a resident led, community-based environmental justice organization dedicated to achieving healthy homes, healthy jobs and healthy neighborhoods for all who live, work, learn and play in West Oakland. WOEIP's mission is to build grassroots capacity to provide local leadership for positive change. Their work aids residents in understanding the political, social and natural forces that impact their lives. They give impacted residents the tools to participate in these processes and to drive change from the bottom.

## **REQUIRED TEXTS**

A course reader is available at Krishna Copy (2001 University Avenue). All students are required to obtain the course reader and to come to class having completed the required readings. On a few occasions, additional readings will be posted to bCourses or distributed in class.

## **COURSE REQUIREMENTS AND GRADING STRUCTURE**

### **Participation and Citizenship**

Attendance in both lecture and discussion section is mandatory for this course. You are expected to show up *on time*. Arriving late is a disruption and a disservice to your fellow classmates. Any unexcused absences or late arrivals to class will negatively affect your participation grade. In addition to attendance, I expect you to be an *active participant* in class discussions. Come to lecture and section prepared to discuss and comment upon the course readings and ask questions.

### **Analytical Reflections (2) (750 – 1000 words each)**

As this course aims to focus on the relationship between technical actors and the communities in which they are working, reflection upon oneself and one's individual location within society is a key component. To that end, over the course of the semester you must complete **two (2) analytical reflections**. These reflections must be polished, critical, analytical pieces. Specific prompts and due dates for each reflection will be provided.

### **Reading Responses (4) (750 – 1000 words each)**

Over the course of the semester you must complete **five (5) reading responses**. These responses will challenge you to demonstrate your understanding of the readings as well as place the material in conversation with the topics we will be discussing that week. *Please note that you may only submit reading responses for the days/weeks marked with “RR” next to the title in the syllabus*. Specific instructions for completing these reading responses will be provided.

### **Problem Sets (3)**

Over the course of the semester you must complete **three (3) problem sets**. These problem sets will require you to use quantitative analyses to demonstrate how various sources of environmental pollution affect societal groups differently based upon ethnicity, race, class, or gender. Specific instructions and due dates for completing these problem sets will be provided.

### **Final Paper (3500 – 4000 words)**

Your final paper will require you to deconstruct an engineering project that was completed within the past 20 years. In the paper you will begin by analyzing the technical components of the project and describing the problem definition as it was understood by the engineers. Following the technical analysis, you will be asked to step back and evaluate the larger context in which this technical intervention took place, and to consider the social, political, and cultural implications of the project. You will be required to submit numerous small assignments leading up to the final paper, giving your GSI a chance to provide you with feedback that you can incorporate into your final product. A detailed description of the paper topic will be provided.

## Grading Structure

Participation and Citizenship		15%
Analytical Reflections (2)		10%
Reading Responses (5)		20%
Problem Sets (3)		20%
Final Paper	DUE: Monday May 9, 5pm	35%
<i>TOTAL</i>		<i>100 %</i>

All assignments, as well as final grades, will be computed using the following, relatively standard, grading scheme:

A+ $\geq$ 99%	90 > B+ $\geq$ 87	80 > C+ $\geq$ 77	
99 > A $\geq$ 93	87 > B $\geq$ 83	77 > C $\geq$ 73	
93 > A- $\geq$ 90	83 > B- $\geq$ 80	73 > C- $\geq$ 70	(and so on)

## POLICIES

### Late Assignments

Assignments must be handed in *at the beginning of class* on the day that they are due. Late assignments will receive a 10% penalty for each day or part thereof that they are delayed. This means a grade 90/100 that is 1.5 days late will be reduced to a 70/100. Assignments more than 10 days late will not be accepted and you will receive a zero for that assignment. If you do turn in a late assignment, you must email me and your GSI a copy of the assignment so we know exactly when it was turned in and can calculate the point reduction. *It is your responsibility to understand this policy - if there is anything unclear, ask me!*

### Assignment Format

Unlike many other engineering courses, there is a fair bit of writing for this class. In order to help with grading, I would like you to include word counts at the end of each writing assignment. Be sure to include your full name on each page as well. I also encourage you to print your assignments double-sided, if possible.

#### *Writing Assistance*

Have trouble with writing assignments? Join the club... Campus has resources to help you – take advantage of them! Please visit the Student Learning Center ([slc.berkeley.edu](http://slc.berkeley.edu)) to get help with your assignments. You will receive better help if you plan ahead and make an appointment. You can make appointments or learn about drop-in times via the “Writing” link under “Academic Programs & Services” on their home page.

### Email

I aim to respond to emails 48-72 hours after I receive them. Do not expect me to respond to last minute emails before assignments are due! Substantive questions should be saved for section or office hours.

**Academic Honesty**

This is a course designed to provoke critical thinking. While I encourage study groups and working together to understand course material, all written work should be your own. Please do not use other students' work for your assignments. If you cite an author or use his/her ideas, please cite properly. Plagiarized assignments will receive an F. More information on what constitutes as plagiarism is available from the UC Berkeley Campus Code of Student Conduct: <http://sa.berkeley.edu/student-code-of-conduct>. If you have any further questions, please ask.

**Grade Disputes**

Students who wish to dispute grades on an assignment must do so in writing. Grade disputes must be submitted no sooner than 24 hours after receiving your grade, but within two weeks. Any dispute should outline specifically why you feel there is an error and should not contain information about what grades you usually get or how long you spent on the assignment. Please note that grades may be lowered as well as raised after reviewing assignments.

**Electronic Technology Policy**

Computers (laptops, phones, tablets etc.) and recording devices are not allowed in class. Please turn these off and put them away before each class.

**Special Needs / Accommodations for Disabled Students**

I am committed to creating a learning environment welcoming of all students. If you have any special needs, please notify me as soon as possible so that appropriate accommodations can be made. If an unexpected personal or medical challenge is interfering with your ability to complete assignments and/or attend class, it is your responsibility to contact me as early as possible.

## COURSE SCHEDULE

### Week 1

Jan 19

**Introductions:** Course Logistics, Syllabus, and Expectations

## BACKGROUND

### THE ENVIRONMENT, SOCIETY, AND ENGINEERING

#### THE ENVIRONMENT

*Although human beings make up only a small portion of the Earth's total biomass, the impacts of humans upon the environment is enormous. We start this course by exploring the relationship between human impacts upon the natural environment and social inequality.*

Jan 21

#### **What is Environmental Justice?**

Gross, Liza (2013) "No Bebe el Agua" *Environmental Health News*, June 11.

Retrieved from

<http://www.environmentalhealthnews.org/ehs/news/2012/pollution-poverty-and-people-of-color-nitrate-day-4>

Mohai, Paul; Pellow, David; and Roberts, Timmons (2009) "Environmental Justice" *Annual Review of Environment and Resources* 34(1):405-430.

#### SOCIETY

*Inequality, embedded within social structures and institutions, is a feature of all societies, some more than others. In these class meetings we will study the structural forms of inequality in America, paying particular (but not exclusive) attention to its racial and economic forms. In addition, we will think critically about our own individual privileged positions within American society. Finally, we will locate the place of community engaged scholarship, with both its opportunities and limits, in attempts to address inequality in America.*

### Week 2

Jan 26

#### **Inequality in the United States**

**RR**

Light, John (2013) "Our Growing Racial Wealth Gap" *Moyers & Company*

August 12. Retrieved from <http://billmoyers.com/2013/08/12/our-growing-racial-wealth-gap/>.

Kaufman, Cynthia (2003) Capitalism and Class. In *Ideas for Action: Relevant theory for radical change* (pp. 57-80) Cambridge: South End Press.

Kaufman, Cynthia (2003) Theorizing and Fighting Racism. In *Ideas for Action: Relevant theory for radical change* (pp. 121-149) Cambridge: South End Press.

Jan 28

## Personal Privilege and Intersectionality

*Reflection #1 (Due Monday Feb 1)*

- Fortang, Tal (2014) "Checking My Privilege: Character as the Basis of Privilege" *The Princeton Tory* April 2. Retrieved from <http://theprinceton Tory.com/main/checking-my-privilege-character-as-the-basis-of-privilege/>.
- Baudelaire, Violet (2014) "To the Princeton Privileged Kid" May 1. Retrieved from <http://groupthink.jezebel.com/to-the-princeton-privileged-kid-1570383740>.
- Rosenberg, Paul (2014) "White privilege 101: Here's the basic lesson Paul Ryan, Tal Fortgang and Donald Sterling need" *Salon.com* May 9. Retrieved from [http://www.salon.com/2014/05/09/white\\_privilege\\_101\\_heres\\_the\\_basic\\_lesson\\_paul\\_ryan\\_tal\\_fortgang\\_and\\_donald\\_sterling/](http://www.salon.com/2014/05/09/white_privilege_101_heres_the_basic_lesson_paul_ryan_tal_fortgang_and_donald_sterling/).
- Nash, Jennifer C (2008) "re-thinking intersectionality" *feminist review* 89:1-15.

Week 3

Feb 2

## Community Engaged Scholarship: What is it? Why do it?

### *Guest Lecture:*

*Victoria Robinson, Director, The American Cultures Center, UC Berkeley*

- Wilson, Robin (2011) "Syracuse's Slide" *The Chronicle of Higher Education* Oct 2. Retrieved from <http://chronicle.com/article/Syracuses-Slide/129238/>.
- Graduate Student Response: "Syracuse Graduate Students Embrace Change" *The Chronicle of Higher Education* Oct 23. Retrieved from <http://chronicle.com/article/Syracuse-Graduate-Students/129497/>.
- Cech, Erin (2014) "Culture of Disengagement in Engineering Education?" *Science, Technology, & Human Values* 39(1): 42-72.

Feb 4

## From Personal Privilege to Professional Hegemony

- Kaufman, Cynthia (2003) Thinking About Liberation (selections). In *Ideas for Action: Relevant theory for radical change* (pp. 18-34) Cambridge: South End Press.
- Takacs, David (2002) "Positionality, Epistemology, and Social Justice in the Classroom" *Social Justice* 29(4):168-181.

## ENGINEERING

*What is the place of engineering in American society and how did it get there? In the following class sessions, we will develop a theoretical foundation to help us explain the relationship between engineering and society. We start by considering the relationship between engineering and ideas of progress as they have developed and changed since the onset of the Industrial Revolution. We then go on to explore the relationship between expert knowledge and power, and consider the place of engineering in contemporary political and economic structures.*

### Week 4

Feb 9

#### **Engineering, Technology, and Ideas of Progress**

**RR**

Riley, Donna (2008) *Mindsets in Engineering*. In *Engineering and Social Justice* (pp. 33-45). In Baillie, Caroline (Series Ed.) *Synthesis Lectures on Engineers, Technology, and Society* #7. Morgan & Claypool ebook.

Baillie, Caroline (2009) *Engineering and Society*. In *Engineering and Society: Working Towards Social Justice Part 1: Engineering and Society* (pp. 13-27). In Baillie, Caroline (Series Ed.) *Synthesis Lectures on Engineers, Technology, and Society* #8. Morgan & Claypool ebook.

Giannella, Eric (2015) "Morality and the Idea of Progress in Silicon Valley" *Berkeley Journal of Sociology* January 2015. Retrieved from <http://berkeleyjournal.org/2015/01/morality-and-the-idea-of-progress-in-silicon-valley/>

Feb 11

#### **Experts and Politics I: Wastewater Treatment, A Case Study**

**RR**

Mitchell, Timothy (2005) *The Object of Development*. In *Rule of Experts: Egypt, Techno-Politics, Modernity* (pp. 209-243) Berkeley: UC Press.

Verma, Gita (2000). "Indore's Habitat Improvement Project: success or failure?" *Habitat International* 24: 91-117.

### Week 5

Feb 16

#### **Experts and Politics II: Rendering Technical**

**RR**

Li, Tania (2007) *Introduction: The Will to Improve*. In *The Will to Improve: Governmentality, Development, and the Practice of Politics* (pp. 1-12) Durham: Duke University Press.

Cohen, Benjamin and Ottinger, Gwen (2011) *Introduction: Environmental Justice and the Transformation of Science and Engineering*. In *Technoscience and environmental justice: expert cultures in a grassroots movement* (pp. 1-18) MIT Press.

Feb 18

#### **Knowledge Production and Power**

Goldman, Michael (2005) *The Birth of a Discipline: Producing Environmental Knowledge for the World*. In *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization* (pp. 151-180) New Haven: Yale University Press.

Corburn, Jason (2007) "Community knowledge in environmental health science: co-producing policy expertise" *Environmental Science and Policy* 10(2):150-161.

# INTERSECTIONS

## ENVIRONMENTAL ENGINEERING AND VULNERABLE COMMUNITIES

### INDUSTRIAL WASTE

*Waste streams produced from industrial processes are a major pollution source, and environmental engineers commonly play a role in the regulation, prevention, or mitigation of the adverse effects of this pollution. In America, industrial pollution has had a well-documented, disproportionate effect upon African American, Latino, and Native American communities, with one prominent study showing that African Americans are 79% more likely than whites to live in neighborhoods subject to dangerous industrial pollution. This week we will consider both relationship between environmental engineering and industrial waste as well as the effects of industrial pollution on African American communities.*

#### Week 6

Feb 23

#### **Environmental Engineering and Industrial Waste**

Grossi, Mark (2013) “Kettleman City reaps toxic harvest of California castoffs”

*The Fresno Bee* January 12. Retrieved from

<http://www.fresnobee.com/2013/01/12/3131461/kettleman-city-reaps-toxic-harvest.html>.

Hoffman, Steven (2001) “Negotiating Eternity: Energy Policy, Environmental Justice, and the Politics of Nuclear Waste” *Bulletin of Science, Technology, & Society* 21(6):456-472.

Feb 25

#### **Industrial Waste and African American, Asian American, and Latino Communities in California**

***Guest Lecture: Tracy Zhu, Environment Fellow at The San Francisco Foundation***

Bullard, Robert and Wright, Beverly (2012) The Wrong Complexion for Protection: Response to Toxic Contamination. *The Wrong Complexion for Protection: How the Government Response To Disaster Endangers African American Communities* (pp. 100-125) New York: NYU Press.

## **AIR QUALITY**

*Protecting air quality is a central concern for environmental engineers, and exposure to air pollution often – though not always – varies across race and class in America. This week, in addition to exploring the approaches of environmental engineering to understanding and reducing air pollution, we will look at the long-standing disparities that exist in air pollution exposure here in California and their effects upon African American, Asian American, and Latino communities.*

### **Week 7**

**Mar 1**

#### **Environmental Engineering and Air Quality**

**Guest Lecture: Phil Martien, Air Quality Engineering Manager, Bay Area Air Quality Management District**

Tarr, Joel (2004) Afterword. In DuPuis, Melanie (Ed.) *Smoke and Mirrors: The Politics and Culture of Air Pollution* (pp. 337-341) New York: NYU Press.

Harrison, Jill (2004) Invisible People, Invisible Places: Connecting Air Pollution and Pesticide Drift in California. In DuPuis, Melanie (Ed.) *Smoke and Mirrors: The Politics and Culture of Air Pollution* (pp. 288-304) New York: NYU Press.

**Mar 3**

#### **Air Quality and African American, Asian American, and Latino Communities in California**

**Guest Lecture: Andrés Soto, Richmond Organizer, Communities for a Better Environment**

Hackbarth, Andrew; Romley, John; Goldman, Dana (2011) “Racial and ethnic disparities in hospital care resulting from air pollution in excess of federal standards” *Social Science & Medicine* 73(8):1163-1168.

## **WATER**

*While lack of access to safe drinking water is commonly thought of as a problem outside of western industrialized nations, here in California numerous Latino communities have water piped into their homes that is unsafe to drink, contaminated with heavy metals, nitrates, and pesticides. Drinking water treatment, a core component of environmental engineering, provides many technological options to treat contaminated water, however each technology comes with political, economic, and social implications. Moreover, many communities concerns for their water is dominated by its social, cultural, and spiritual importance. This week we will think about the intersection of the physiochemical and sociocultural approaches to water. To that end, we will consider the relationship between water engineering and the subsequent effects of these projects upon Latino and Native American communities in California.*

### **Week 8**

**Mar 8**

#### **Environmental Engineering and Water**

Morgan, R. and Smith, J. (2013) “Premodern Streams of Thought in Twenty-First-Century Water Management” *Radical History Review* 116:105-129.

Rubin, Sara (2013) “Lawmakers scramble to make drinking water a right; meanwhile, contamination in Monterey County is getting worse” *Monterey*

*County Weekly* Jun 13. Retrieved from  
[http://www.montereycountyweekly.com/archives/2013/0613/article\\_67a4dcfc-d3b2-11e2-873e-001a4bcf6878.html](http://www.montereycountyweekly.com/archives/2013/0613/article_67a4dcfc-d3b2-11e2-873e-001a4bcf6878.html).

**Mar 10 Water and Native American Communities in California**

***Guest Lecture: tba***

Swyngedouw, E. (2009) “The Political Economy and Political Ecology of the Hydro-Social Cycle” *Journal of Contemporary Water Research & Education* 142:56-60.

Grossi, Mark (2013) “Northern California tribal members protest at Westlands office over water” *The Fresno Bee*, August 20. Retrieved from  
<http://www.fresnobee.com/2013/08/20/3451708/northern-california-tribal-members.html>.

**URBAN INFRASTRUCTURE**

*Following WWII, much of American urban development has been characterized by sprawl, concentrated poverty, and racial segregation. This combination has resulted in many minority-dominated, poor urban areas being burdened with crumbling infrastructure. While urban infrastructure development is inherently interdisciplinary, environmental engineering is currently leading the charge to reshape America’s urban water infrastructure (e.g. UC Berkeley’s ReNUWit center, primarily directed by civil and environmental engineers). This week we will look at both the role of environmental engineering in urban redevelopment as well as the racialized disparities faced by African American and Latino communities in their experiences of America’s infrastructure.*

**Week 9**

**Mar 15 Environmental Engineering and Urban Infrastructure**

Hager, G. *et al.* (2013) “Socioecological revitalization of an urban watershed” *Frontiers in Ecology and the Environment* 11:28–36.

**Mar 17 Urban Infrastructure and African American and Latino Communities in Richmond, CA**

***Field Trip: Restoring the Richmond Greenway***

Marsh, B.; Parnell, A.; and Joyner, A. (2010) “Institutionalization of racial inequality in local political geographies” *Urban Geographies* 31:691–709.

**Mar 22 and 24**

**Spring Break – No Class**

## **CLIMATE CHANGE**

*Perhaps the most important environmental justice issue facing the world today, climate change is commonly perceived as a unifying, evenly distributed problem. However both the causes and the effects of climate change are far from even, and the most vulnerable and poor populations are the first and most heavily affected. This week we will explore the relationship between climate change and poverty, together with its racialized, intergenerational, and gendered components.*

### **Week 10**

**Mar 29**      *Film Screening – Disruption*

### **Mar 31**      **Climate Justice**

Morello-Frosch, Rachel *et al.* (2009) The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap. Retrieved from [http://dornsife.usc.edu/perc/documents/ClimateGapReport\\_full\\_report\\_web.pdf](http://dornsife.usc.edu/perc/documents/ClimateGapReport_full_report_web.pdf).

Logan, Mary (2012) “Is climate change a euphemism for growth?” *A Prosperous Way Down* September 29. Retrieved from <http://prosperouswaydown.com/climate-euphemism-growth/>.

## CONCLUSIONS

### AMERICAN CULTURES AND ENVIRONMENTAL ENGINEERS

*In these final weeks of class we will step back and focus on the broad relationship between engineering and justice. In addition to learning about the work that your classmates have been doing with local communities, we look forward toward our future professional lives. In considering the future, we will reflect upon the role of ethics and privilege in the practice of engineering, and how engineers might engage in their careers in ways that prioritize social justice.*

#### Week 11

Apr 5

##### **The Environment: For Whom? For What?**

Huesemann, Michael and Huesemann, Joyce (2011) Introduction. In *Techno-Fix: Why Technology Won't Save Us or the Environment* (pp. xxiii-xxviii) Gabriola Island, BC: New Society Publishers.

Huesemann, Michael and Huesemann, Joyce (2011) The Design of Environmentally Sustainable and Socially Appropriate Technologies. In *Techno-Fix: Why Technology Won't Save Us or the Environment* (pp. 295-312) Gabriola Island, BC: New Society Publishers.

Vidal, John (2011) "Bolivia enshrines natural world's rights with equal status for Mother Earth" *The Guardian* April 10. Retrieved from <http://www.theguardian.com/environment/2011/apr/10/bolivia-enshrines-natural-worlds-rights>.

Apr 7

##### **Limits to Growth: Markets, Political Economy, and Engineering** **RR**

Mitchell, Timothy (2011) Introduction and Fuel Economy. In *Carbon Democracy: Political Power in the Age of Oil*. (pp 1-11, 109-143) London: Verso.

Monbiot, George (2014) "The Impossibility of Growth" May 27. Retrieved from <http://www.monbiot.com/2012/06/22/how-sustainability-became-sustained-growth/>.

#### Week 12

Apr 12

##### **Engineering Security: Prisons, Security, and Military in America**

Alexander, Michelle (2010) Introduction. In *The New Jim Crow: Mass Incarceration in the Age of Colorblindness* (pp. 1-19) New York: The New Press.

Loyd, Jenna M. *et al* (2012) Introduction: Borders, Prisons, and Abolitionist Visions in Jenna M. Loyd *et al.* (Eds.) *Beyond Walls and Cages: Prisons, Borders, and Global Crisis* (pp. 1-15) Athens: University of Georgia Press.

**Apr 14**

**Ethics and Engineering**

**RR**

Schmidt, Jon (2013) "Changing the Paradigm for Engineering Ethics" *Sci Eng Ethics*, accessed online.

Karwat, Darshan; Eagle, Walter; Wooldridge, Margaret; and Princen, Thomas (2014) "Activist Engineering: Changing Engineering Practice By Deploying Praxis" *Sci Eng Ethics*, accessed online.

Huesemann, Michael and Huesemann, Joyce (2011) Critical Science and Social Responsibility. In *Techno-Fix: Why Technology Won't Save Us or the Environment* (pp. 313-338) Gabriola Island, BC: New Society Publishers.

**Week 13**

**Apr 19**

**ACES Groups: Class Presentations**

**Apr 21**

**ACES Groups: Class Presentations**

**Week 14**

**Apr 26**

**Engineering and Social Justice**

*Reflection #2 (Due Monday, May 2)*

Riley, Donna (2008) Engineering and Social Justice. In *Engineering and Social Justice* (pp. 47-106). In Baillie, Caroline (Series Ed.) *Synthesis Lectures on Engineers, Technology, and Society*. Morgan & Claypool ebook.

Cole, T. (2012) "The White Savior Industrial Complex" *The Atlantic*, March 21.

**Apr 28**

**Conclusions**

**RR**

Riley, Donna (2008) Toward a More Socially Just Engineering. In *Engineering and Social Justice* (pp. 107-123). In Baillie, Caroline (Series Ed.) *Synthesis Lectures on Engineers, Technology, and Society*. Morgan & Claypool ebook.

Riley, Donna (2008) Parting Lessons for the Continuing Struggle. In *Engineering and Social Justice* (pp. 143-149). In Baillie, Caroline (Series Ed.) *Synthesis Lectures on Engineers, Technology, and Society*. Morgan & Claypool ebook.

## Campus Resources

### **Disabled Students' Program (DSP)**

<http://dsp.berkeley.edu>

260 César Chávez Student Center, University of California, Berkeley  
642-6376

The Disabled Student's Program serves students with disabilities of all kinds. Services are individually designed and based on the specific needs of each student as identified by DSP's Specialists. The Program's official website includes information on DSP staff, UC's disabilities policy, application procedures, campus access guides for most university buildings, and portals for students and faculty/proxy respectively.

### **Student Learning Center**

<http://slc.berkeley.edu>

César Chávez Student Center, University of California, Berkeley  
642-7332

As the primary academic support service for students at the University of California at Berkeley, the Student Learning Center (SLC) assists students in transitioning to Cal; navigating the academic terrain; creating networks of resources; and achieving academic, personal and professional goals. Through various services including tutoring, study groups, workshops and courses, SLC supports students in Biological and Physical Sciences, Business Administration, Computer Science, Economics, Mathematics, Social Sciences, Statistics, Study Strategies and Writing.

### **Educational Opportunity Program (EOP)**

<http://eop.berkeley.edu>

119 César Chávez Student Center, University of California, Berkeley  
642-7224

Educational Opportunity Program (EOP) is an academic counseling/advising service that assists all undergraduate students, with a primary focus on Education Opportunity Program students and students who participated in outreach programs. The SLAS office assists students in developing the skills required to succeed at Berkeley and beyond by taking a comprehensive approach to counseling/advising on academic, personal and social matters.

### **Ombudsperson for Students**

<http://sa.berkeley.edu/ombuds>

102 Sproul Hall, University of California, Berkeley  
642-5754

The Ombudsperson for Students provides a confidential service for students involved in a University-related problem (academic or administrative), acting as a neutral complaint resolver and not as an advocate for any of the parties involved in a dispute. The Ombudsman can provide information on policies and procedures affecting students, facilitate students' contact with services able to assist in resolving the problem, and assist students in complaints concerning improper application of University policies or procedures. All matters referred to this office are held in strict confidence. The only exceptions, at the sole discretion of the Ombudsman, are cases where there appears to be imminent threat of serious harm.

### **Tang Center Counseling and Psychological Services**

<http://uhs.berkeley.edu>

2222 Bancroft Way, University of California, Berkeley  
642-9494

The UHS Counseling and Psychological Services staff provides confidential assistance to students managing problems that can emerge from illness such as financial, academic, legal, family concerns, and more. In the realm of sexual harassment, UHS coordinates education programs, crisis counseling, advocacy, and medical care for women and men who have been harassed or assaulted (Tang Center, 2222 Bancroft Way; Prevention, 642-7202; Victim Assistance and Counseling, 642-6074; Counseling Services, 642-9494; Medical Care, 642-3188).