

## Geography 130 - Agriculture and the Environment

Instructor: Adam Romero

Summer Session A: May 27<sup>th</sup> – July 3<sup>rd</sup>

Tues, Wed, Thur: 11:30-2:00

575 McCone Hall



*"Booster Shots for Bumper Crops." Shell Chemical Corporation Advertisement, circa 1955*

"Owing to the lack of state support at least initially, the organic movement/industry necessarily developed organic regulations and institutions *de novo*, which only later became substantially undergirded by state policy. Private certifying institutions became the primary institutional vehicle through which the meanings of organic were created, operationalized, and enforced, even though these interests clearly overlapped with trade organizations. The result was a unique articulation of interests, with regulatory imperatives not altogether clear – at once serving a broad public but at the same time offering self-protection to the existing industry. In that way, the evolution of organic meanings is inseparable from that of the infrastructure that supports them." Julie Guthman, *Agrarian Dreams: The Paradox of Organic Farming in California*, 2004

## **Class Statement**

The cultivation of food and fiber is arguably the single most important arena of human interaction with the environment: it impacts most of the world's land, fresh water, and marine ecosystems; it has profound effects on human health, equity and well-being; and it contributes significantly to - and will be strongly affected by - climate change.

The domestication of plants and animals about 10,000 years ago marked a fundamental shift in humanity's relationship with sustenance, nutrition, energy, and social organization. The general shift to industrial capitalist agriculture, as a contributor to and as a consequence of the industrial revolution and colonial expansion, has been just as significant.

In this class we turn our attention to the relationships between the production of food, clothing, energy, the environment, and a dynamic agrarian complex structured around production for and realization of value in a market. Drawing from four case studies, we take a critical look at structure, function, and change in the agro-industrial complex.

Each week of class provides a different lens through which we can view a facet of these relationships. While we draw from diverse fields of knowledge, this course begins from the proposition that human-environment relations are always social relations. How food and other natural resources are produced, distributed, valued, consumed, conserved and degraded are historically - and geographically - specific questions whose answers cannot be reduced to simple formulas.

## **Office Hours and Email**

I will hold office hours Tuesdays from 10:00 - 11:15 am and Thursdays from 2:10 – 3:15 pm in 189 McCone Hall. Email me if you want to meet and can't make these hours. My email address is [adam.romero@berkeley.edu](mailto:adam.romero@berkeley.edu). Please feel free to contact with any questions or concerns.

## **Website**

PowerPoint slides from lecture will be posted to [bspace.berkeley.edu](http://bspace.berkeley.edu). Announcements will also be made through bspace. Please make sure you have access to the site and that you have the correct email address on bspace.

## **Books and Reader**

Please purchase the following texts for the course. The remaining readings will be compiled in a reader available at Copy Central. Readings will also be posted to bspace.

Guthman, J. 2011. *Weighing In: Obesity, Food Justice, and the Limits of Capitalism*, Berkeley, University of California Press.

Striffler, S. 2005. *Chicken: The Dangerous Transformation of America's Favorite Food*, New Haven, Yale University Press. (An ebook version is available for download on bspace)

## **Assignments and Grading**

There will be 5 written assignments throughout the course. Assignments and grading criteria will be handed out separately. There is no midterm. The final exam is the last day of class.

Your overall class grade is based on the following:

4 short writing assignments	- 10% each, 40% total
Positional paper assignment	- 20%
In class final	- 40%

## **Academic Integrity**

Any test, paper, report or homework submitted under your name is presumed to be your own original work that has not previously been submitted for credit in another course. All words and ideas written by other people must be properly attributed: fully identified as to the source and the extent of your use of their work. Cheating, plagiarism and other academic misconduct will result in a failing grade on the assignment, paper, quiz or exam in question and will be reported to Student Judicial Affairs.

## **Schedule and Readings:**

### ***Week 1 – Setting the Stage***

#### **- May 27**

Introduction and class discussion

#### **- May 28**

Sahlins, M. (1974). *Stone Age Economics*. Chicago: Aldine Publishing Company. pp. 1-14, 32-39

Pyne, S. J. (1995). *World Fire: The Culture of Fire on Earth*. Seattle, WA: University of Washington Press. pp. 299-314

Mann, C. (2005). *1491: New Revelations of the Americas Before Columbus*. New York, Vintage Books. pp. 3-30

Pringle, H. (1998). The Slow Birth of Agriculture. *Science*, 282(5393). pp. 1446-1552.

Brown, K. (2001). New Trips Through the Back Alleys of Agriculture. *Science*, 292(5517). pp. 631-633.

Adler, C. J., Dobney, K., Weyrich, L. S., Kaidonis, J., Walker, A. W., Haak, W., . . . Alt, K. W. (2013). Sequencing Ancient Calcified Dental Plaque Shows Changes in Oral Microbiota with Dietary Shifts of the Neolithic and Industrial revolutions. *Nature Genetics*, 45(4). Pp. 450

Sen, A. (1994) Population: Delusion and Reality. *New York Review of Books*, September. pp. 1-9

### **- May 29**

Mann, S. A. (1990). *Agrarian Capitalism in Theory and Practice*. Chapel Hill, NC: The University of North Carolina Press. pp. 28-46

Mcmillen, W. (1939). Chemurgy: Utilization of Farm Products in the American Way. *Industrial & Engineering Chemistry*, 31(5). pp. 540-548.

Rosin, J. & M. Eastman. (1953). *The Road to Abundance*. New York: McGraw Hill Book Company. pp. 3-9

Cochrane, W. W. (1993). *The Development of American Agriculture: A Historical Analysis*. Minneapolis, MN: University of Minnesota Press. pp. 371-388

Walker, R. *The Conquest of Bread: 150 Years of Agribusiness in California*. The New Press, 2004. pp. 19-47

Olmstead, A. L., & Rhode, P. W. (2008). *Creating Abundance: Biological Innovation and American Agricultural Development*. Cambridge, UK: Cambridge University Press. 386-402

Evenson, R. E. & D. Gollin (2003) Assessing the Impact of the Green Revolution. *Science*, 300. pp. 758-762.

### ***Week 2 - Food Scares and Regulatory Scales***

#### **- June 3**

Friedberg, S. (2009). *Fresh: A Perishable History*. Cambridge, MA: The Belknap Press of the Harvard University Press. pp. 18-48

Ryder, E. J. 1999. *Lettuce, Endive, and Chicory*. New York: CABI Publishing. pp. 1-27

Petrick, G. M. (2006). " Like Ribbons of Green and Gold": Industrializing Lettuce and the Quest for Quality in the Salinas Valley, 1920-1965. *Agricultural History*, 80(3). pp. 269-295.

Shekhar, V. (2010). Produce Exceptionalism: Examining the Leafy Greens Marketing Agreement and Its Ability to Improve Food Safety. *Journal of Food Law & Policy*, 6. pp. 267-285.

DeLind, L. B. & P. H. Howard (2008) Safe at any scale? Food Scares, Food Regulation, and Scaled Alternatives. *Agriculture and Human Values*, 25. pp. 301-317.

#### **- June 4**

Gregor, H. F. (1963). Industrialized Drylot Dairying: An Overview. *Economic Geography*, 39(4). pp. 299-318.

Ogle, M. (2013). *In Meat We Trust: An Unexpected History of Carnivore America*. New York: Houghton

- Mifflin Harcourt. pp. 123-159
- O'Neill, K. (2005) How Two Cows Make a Crisis: US-Canada Trade Relations and Mad Cow Disease. *American Review of Canadian Studies*, 35. pp. 295-319.
- Lefrançois, T., & Pineau, T. (2014). Public Health and Livestock: Emerging Diseases in Food Animals. *Animal Frontiers*, 4(1). pp. 4-6.
- Mathew, A. G., Cissell, R., & Liamthong, S. (2007). Antibiotic Resistance in Bacteria Associated with Food Animals: a United States Perspective of Livestock Production. *Foodborne Pathogens and Disease*, 4(2). pp. 115-133.

### **- June 5**

- Gray, G. P. (1918) Economic Toxicology. *Science*, 48. pp. 329-332.
- Whorton, J. (1974). *Before Silent Spring: Pesticides and Public Health in Pre-DDT America*. Princeton, NJ: Princeton University Press. pp. 95-132
- Carson, R. (1962). *Silent Spring*. Cambridge, MA: The Riverside Press. pp. 1-37
- Tolman, J. (1996). Rachel Was Wrong. *Competitive Enterprise Institute*. pp. 1-2
- Entine, J. (Ed.). (2011). *Crop Chemophobia: Will Precaution Kill the Green Revolution?* Washington DC: AEI Press. pp. 1-10, 76-92
- Vandenberg, L. N., Colborn, T., Hayes, T. B., Heindel, J. J., Jacobs Jr, D. R., Lee, D.-H., . . . Welshons, W. V. (2012). Hormones and Endocrine-Disrupting Chemicals: Low-Dose Effects and Nonmonotonic Dose Responses. *Endocrine Reviews*, 33(3). 378-381
- Mascarelli, A. (2013). Growing Up With Pesticides. *Science*, 341(6147). pp. 740-741
- Guillette Jr, L. J., & Iguchi, T. (2012). Life in a Contaminated World. *Science*, 337(6102). pp. 1614-1615

### **Week 3 - Nutrient Pollution**

### **- June 10**

- Smil, V. (2001). *Enriching the Earth: Fritz Haber, Carl Bosch, and the Transformation of World Food Production*. Cambridge, MA: MIT Press. pp. 39-60, 109-132, 155-176
- MEA. (2005). *Ecosystems and Human Well-Being: A Report of the Millennium Ecosystem Assessment*. Washington, DC: World Resources Institute. pp. 1-24
- Galloway, J. N., Townsend, A. R., Erismann, J. W., Bekunda, M., Cai, Z., Freney, J. R., . . . Sutton, M. A. (2008). Transformation of the Nitrogen Cycle: Recent Trends, Questions, and Potential Solutions. *Science*, 320(5878). pp. 889-892.
- Townsend, A. R., & Howarth, R. W. (2010). Fixing the Global Nitrogen Problem. *Scientific American*, 302(2). pp. 64-71.
- Vitousek, P. M., Naylor, R., Crews, T., David, M., Drinkwater, L., Holland, E., . . . Matson, P. (2009). Nutrient Imbalances in Agricultural Development. *Science*, 324(5934). pp. 1519-1520
- Naylor, R., H. Steinfeld, W. Falcon, J. Galloway, V. Smil, E. Bradford, J. Alder & H. Mooney (2005) Losing the Links Between Livestock and Land. *Science*, 310. pp.1621-1632.

### **- June 11**

- Cronon, W. (1991). *Nature's Metropolis*. New York: W. W. Norton. pp. 97-147
- Kloppenborg, J. R. (2004). *First the Seed: The Political Economy of Plant Biotechnology*. Madison, WI: The University of Wisconsin Press. pp. 50-65, 91-129
- O'Neill, K. M. (2006). *Rivers by Design*. Durham, NC: Duke University Press. pp. 56-67, 128-149
- Prince, H. (1997). *Wetlands of the American Midwest: A Historical Geography of Changing Attitudes*. Chicago, IL: The University of Chicago Press. pp. 203-236

### **- June 12**

- Hey, D. L., Urban, L. S., & Kostel, J. A. (2005). Nutrient farming: The business of environmental management. *Ecological Engineering*, 24(4), 279-287.
- Yang, Y., J. Bae, J. Kim & S. Suh (2012) Replacing Gasoline with Corn Ethanol Results in Significant Environmental Problem-Shifting. *Environmental Science and Technology*. pp. 3671-3678.
- Donner, S. D. (2007). Surf or turf: A Shift From Feed to Food Cultivation Could Reduce Nutrient Flux to the Gulf of Mexico. *Global Environmental Change*, 17(1). pp. 105-113.
- Gebbers, R. & V. I. Adamchuk (2010) Precision Agriculture and Food Security. *Science*, 327. pp. 828-831.
- Day, J. W., Boesch, D. F., Clairain, E. J., Kemp, G. P., Laska, S. B., Mitsch, W. J., . . . Shabman, L. (2007). Restoration of the Mississippi Delta: Lessons from Hurricanes Katrina and Rita. *Science*, 315(5819). pp.1679-1684.
- Lougheed, T. (2012). Wrangling Reactive Nitrogen: Strategies for Mitigating Pollution. *Environmental Health Perspectives*, 120(5). pp. a200-a203
- LeCompte, C. (2013, April, 15). Fertilizer Plants Spring Up to Take Advantage of U.S.'s Cheap Natural Gas. *Scientific American*. pp. 1-3

## **Week 4 - The Industrial Chicken**

### **- June 17**

- Boyd, W. & M. Watts. (1997). Agro-Industrial Just in Time: The Chicken Industry and Postwar American Capitalism. In *Globalizing Food: Agrarian Questions and Global Restructuring*, eds. D. Goodman & M. Watts. New York: Routledge. pp. 139-159
- Striffler, S. (2005). *Chicken: The Dangerous Transformation of America's Favorite Food*. New Haven, CN: Yale University Press. Entire book.

### **- June 18**

- Friedberg, S. (2009). *Fresh: A Perishable History*. Cambridge, MA: The Belknap Press of the Harvard University Press. pp. 86-121
- Kandel, W. & E. A. Parrado (2005) Restructuring of the US Meat Processing Industry and New Hispanic Migrant Destinations. *Population and Development Review*, 31, 447-471.
- Leonard, C. (2014). *The Meat Racket: The Secret Takeover of America's Food Business*: Simon and

Schuster. pp. 149-158

## **June 19 (Away)**

Watch *Farmed and Dangerous* at home. The show can be found at [www.hulu.com](http://www.hulu.com). The prompt for the associated writing assignment will be handed out June 18.

## ***Week 5 - Obesity and The Politics of What to Eat***

### **- June 24**

Guthman, J. (2011). *Weighing In: Obesity, Food Justice and the Limits of Capitalism*. Berkeley, CA: University of California Press. Entire book.

### **- June 25**

Bobrow-Strain, A. (2007). Kills a Body Twelve Ways: Bread Fear and the Politics of “What to Eat?” *Gastronomica*, 7(3). pp. 45-52.

Levenstein, H. (2012). *Fear of Food: A History of Why We Worry About What We Eat*: University of Chicago Press. pp. 129-159

### **- June 26**

Guthman, J. (2004). *Agrarian Dreams: The Paradox of Organic Farming in California*. Berkeley, CA: University of California Press. pp. 1-22, 110-140

Moss, M. (2013). *Salt, Sugar, Fat: How the Food Giants Hooked Us*. New York: Random House. pp. xi-49

Miner, J. (2006). Market Incentives Could Bring US Agriculture and Nutrition Policies into Accord. *California Agriculture*, 60(1). pp. 8-13.

## ***Week 6 - With Agriculture in Mind***

### **- July 1**

In class review

### **- July 2**

No class, study for final.

### **- July 3**

Final Exam