

# ARE 231: SUPPLY AND DEMAND FOR AGRICULTURAL PRODUCTS

## 1<sup>ST</sup> HALF OF FALL 2019

The class is split in two halves. I will cover supply in the first five weeks and Tim will cover demand in the second five weeks.

**Instructor:** 9/25-10/23 Aaron Smith (adsmith@ucdavis.edu)  
Office Hours: Wednesday 11:00-12:00 or by appt.

**Class Website:** <https://canvas.ucdavis.edu/courses/376278>. Visit this site regularly for handouts as well as some occasional announcements.

**Course Outline:** The class emphasizes empirical work, but we will do some applied theory. We will start big and end small; the first topic will be global agricultural supply and the last will be farm-level supply.

**Lectures:** Monday and Wednesday 2:10-4:00 in SSH 2102.

**Computing:** You may use any software for the empirical work in the class. I will give you Stata and hopefully R code for you to use if you wish.

**Reading:** We will work through a set of academic papers. The main ones are listed later in this syllabus. The reading list may expand as we proceed. There is no textbook. You must also read and adhere to "Writing Tips for Ph.D. Students" by John Cochrane, which I have posted on the class website.

**Assessment:** You will write two five-page papers. I will give you specific assignments for the papers. Each paper will require you to do some empirical analysis and write up your work as though you aim to publish it in an academic journal. You may write your papers with a co-author, but I expect them to be joint work. I may ask you to revise and re-submit your paper if there are significant improvements you could make.

**Code of Conduct:** You are expected to uphold the UC Davis code of conduct, which is available at <http://sja.ucdavis.edu/files/cac.pdf>.

**Due Dates:** All items due at 5pm on the designated day.

Paper 1 (Global):	Due 10/21
Paper 2 (US):	Due 11/8

Aaron Smith  
September 2019

**Course Outline:**

The reading list may expand as we proceed.

**1. *Global Supply***

Roberts, M.J., and W. Schlenker (2013) "Identifying Supply and Demand Elasticities of Agricultural Commodities: Implications for the US Ethanol Mandate," *American Economic Review* 103: 2265–2295.

Hendricks, N.P, J.P. Janzen, and A. Smith (2015) "Futures Prices in Supply Analysis: Are Instrumental Variables Necessary?" *American Journal of Agricultural Economics*, 97(1):22-39.

Scheinkman, J.A. and J. Schechtman (1983) "A Simple Competitive Model with Production and Storage," *Review of Economic Studies* 50 (3): 427–41.

**2. *Storage and Commodity Markets***

Wright, B.D. (2011) "The Economics of Grain Price Volatility," *Applied Economic Perspectives and Policy* 33(1): 32–58.

Williams, J.C. (2001) "Commodity Futures and Options" *Handbook of Agricultural Economics*, Ch 13.

Fishe, R.P.H and A. Smith (2018) "Do Speculators Drive Commodity Prices Away From Supply and Demand Fundamentals?" *Journal of Commodity Markets*, forthcoming.

Carter, C.A., G.C. Rausser, A. Smith (2011) "Commodity Booms and Busts" *Annual Review of Resource Economics* 3: 87-118.

**3. *Country or Market Supply***

Nerlove, M. (1956) "Estimates of Supply of Selected Agricultural Commodities," *Journal of Farm Economics*. 38:496- 509.

Nerlove, M. (1958) "Adaptive Expectations and Cobweb Phenomena," *Quarterly Journal of Economics*. 72:227-240.

Gardner, B.L. (1976) "Futures Prices in Supply Analysis," *American Journal of Agricultural Economics* 58: 81–84.

Nerlove, M. (1979) "The Dynamics of Supply: Retrospect and Prospect," *American Journal of Agricultural Economics*. 61:874-888.

Jarvis, L.S. "Cattle as Capital Goods and Ranchers as Portfolio Managers: An Application to the Argentine Cattle Sector," *Journal of Political Economy*, 82:489-520.

Rosen, S., K.M. Murphy and J.A. Scheinkman (1994), "Cattle Cycles," *Journal of Political Economy*, 102:468-492.

#### 4. *Climate Change*

- Schlenker, W. and M.J. Roberts (2009) "Nonlinear temperature effects indicate severe damages to U.S. crop yields under climate change," *Proceedings of the National Academy of Sciences* 106 (37): 15594–98.
- Mendelsohn, R., W.D. Nordhaus, and D. Shaw (1994) "The Impact of Global Warming on Agriculture: A Ricardian Analysis," *American Economic Review* 84:753–771.
- Schlenker, W., W.M. Hanemann, and A.C. Fisher (2006) "The Impact of Global Warming on U.S. Agriculture: An Econometric Analysis of Optimal Growing Conditions." *Review of Economics and Statistics* 88:113–125.
- Hendricks, N.P. (2018) "Potential Benefits from Innovations to Reduce Heat and Water Stress in Agriculture," *Journal of the Association of Environmental and Resource Economists* 5(3): 545-576.
- Ortiz-Bobea, A. (2019) "The Role of Nonfarm Influences in Ricardian Estimates of Climate Change Impacts on U.S. Agriculture," *American Journal of Agricultural Economics*. forthcoming.
- Deschênes, O., and M. Greenstone (2007) "The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather," *American Economic Review* 97:354–385.
- Fisher, A., M. Hanemann, M. Roberts, and W. Schlenker (2012) "The economic impacts of climate change: evidence from agricultural output and random fluctuations in weather: comment," *American Economic Review* 102:3749–3760.
- Deschênes, O., and M. Greenstone (2012) "The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather: Reply," *American Economic Review* 102:3761–3773.

#### 5. *Farm Supply*

- Feder, G., R.E. Just and A. Schmitz (1980) "Futures Markets and the Theory of the Firm Under Price Uncertainty," *Quarterly Journal of Economics*, 94(2): 317-328.
- Hendricks, N.P, A. Smith, and D. Sumner (2015) "Crop Supply Dynamics and the Illusion of Partial Adjustment," *American Journal of Agricultural Economics*, 96(5): 1469-1491.
- Hennessy, D.A. (2006) "On Monoculture and the Structure of Crop Rotations," *American Journal of Agricultural Economics*, 88:900–914.
- Livingston, Michael, Michael J. Roberts, and Yue Zhang (2015) "Optimal Sequential Plantings of Corn and Soybeans Under Price Uncertainty." *American Journal of Agricultural Economics* 97(3):855-878.
- Sandmo, A. (1971) "On the Theory of the Competitive Firm Under Price Uncertainty," *American Economic Review*, 61:65-73.

**ARE 231: FALL 2019 CALENDAR**

	MON	TUE	WED	THUR	FRI	
S E P			25 <u>Lecture 1</u> Intro	26	27	WEEK 0
S E P O C T	30 <u>Lecture 2</u> Futures markets	1	2 <u>Lecture 3</u> Estimating global ag supply (and demand) elasticities	3	4	WEEK 1
O C T	7 <u>Lecture 4</u> US crop supply	8	9 <u>Lecture 5</u> Climate Change	10	11	WEEK 2
O C T	14 <u>Lecture 6</u> Climate Change	15	16 <u>Lecture 7</u> Risk and insurance	17	18	WEEK 3
O C T	21 <u>Lecture 8</u> Rotation	22	23 <u>Lecture 9</u> Field-level supply	24	25	WEEK 4