

# Breakthrough Bootcamp Syllabus 2011

---

## Day 1: Shifting Paradigms

### *Break Through: Why We Can't Leave Saving the Planet to Environmentalists*

Michael Shellenberger and Ted Nordhaus, 2009

### *"Second Life: A Manifesto For A New Environmentalism"*

Shellenberger and Nordhaus, The New Republic, October 2007 (3 pages)

### *"The Green Bubble,"*

Shellenberger and Nordhaus, The New Republic, 2009 (4 pages)

### *"Ecological Innovation"*

Peter Teague, Nathan Cummings Foundation (11 pages)

### *Design to Win: Philanthropy's Role in the Fight Against Global Warming*

California Environmental Associates, August 2007 (49 pages)

### *"Climate Pragmatism"*

Breakthrough Institute et al., 2011 (15 pages)

### *The Structure of Scientific Revolutions*

Thomas S. Kuhn, 1962 (5 pages)

**Total Page Count: 87 pages**

## Day 2: Modernization and Development

### Modernization Theory

#### *"Culture and Democracy"*

Ronald Inglehart in *Culture Matters: How Values Shape Human Progress*, eds. Lawrence Harrison and Samuel P. Huntington (17 pages)

#### *The Progress Paradox*

Gregg Easterbrook, Chapter 2 (44 pages—skim)

#### *"The Future of American Power: How America Can Survive the Rise of the Rest"*

Fareed Zakaria, *Foreign Affairs*, May/June 2008 (11 Pages)

#### *"Modernization as Liberation Theology: Salvation as the Re-Creation of Creation"*

Michael Shellenberger, Ted Nordhaus, and Jerome Roos, 2010 (14 pages)

### Development Theory

#### *"Economists and Democracy"*

Dani Rodrik, Project Syndicate, (1 page)

#### *Common Wealth: Economics for a Crowded Planet*

Jeffrey Sachs, 2008, Chapter 2 (15 pages—skim)

#### *The Bottom Billion: Why the Poorest Countries Are Falling and What Can Be Done About It*

Paul Collier, 2007, Chapters 1,6,11 (49 pages)

#### *"Goodbye Washington Consensus, Hello Washington Confusion?"*

Dani Rodrik, *Journal of Economic Literature*, December 2006 (15 pages)

**Total Page Count: 166**

### Day 3: Neoclassicism and its Discontents

*The Origin of Wealth*

Eric Beinhocker, Harvard Business School Press, 2006, Chapters 1-3 (73 pages)

*Economic Doctrines and Policy Differences: Has the Washington Debate Been Asking the Wrong Questions?*

Robert D. Atkinson and David Audretsch, Information Technology and Innovation Foundation, 2008, pages 1-19 (19 pages)

*“The Trouble With Progressive Economics”*

Robert D. Atkinson, Breakthrough Journal, 2011 (9 pages)

*“What Good is Wall Street?”*

John Cassidy, New Yorker, November 2010 (17 pages)

**Total Page Count: 118**

### Day 4: Modernizing Liberalism

*“Modernizing Liberalism”*

Ted Nordhaus and Michael Shellenberger, Breakthrough Journal, 2011

*“Against Cosmopolitanism”*

Michael Lind, Breakthrough Journal, 2011 (10 pages)

*“Liberalism and the New Inequality”*

Dalton Conley, Breakthrough Journal, 2011 (8 pages)

*“Daniel Bell’s Prophecy”*

Fred Block, Breakthrough Journal, 2011 (8 pages)

*“The Manufacturing of Decline”*

Vaclav Smil, Breakthrough Journal, 2011 (8 pages)

**Total Page Count: 34 pages**

## Day 5: Breakthrough Dialogue

All Breakthrough Dialogue pre-readings that were sent by email

## Day 6: The Scale of the Energy Challenge

*“Climate Sensitivity Uncertainty and the Need for Energy Without CO<sub>2</sub> Emission”*

Caldeira, Jain, and Hoffert, *Science*, 2003 (4 pages)

*“Future Global Energy Prosperity: The Terawatt Challenge”*

Richard Smalley, *Material Matters*, 2005 (6 pages)

*“The Energy Innovation Imperative”*

John Holdren, *Innovations*, 2006 (19 pages)

*World Energy Outlook 2010*

Executive Summary, International Energy Agency (14 pages)

*“The Pace of Energy Transitions”*

Valcav Smil, *Energy: Myths and Realities* (pp 133-143, 146-149), 2010, (15 pages)

*“Dangerous Assumptions”*

Roger Pielke Jr., Tom Wigley and Chris Green, *Nature*, (2 pages)

**Optional:** Review IPCC AR4 Summary for Policymakers (digital copy provided)

**Total Page Count: 60**

## Day 7: Energy and Decarbonization Math / Technology to Meet the Challenge

### *“Energy, Power, WTF?”*

Breakthrough Institute, Breakthrough Style Guide, Appendix D (5 pages)

### *The Climate Fix*

Roger Pielke, Jr., Basic Books, 2011. Chapters 3 (“Decarbonization of the Global Economy” pgs 61-79) and parts of Chapter 4 (“Decarbonization Policies Around the World” pgs 81-88, 99-105, 107-116) (44 pages)

### *“Energy Emergence”*

Breakthrough Institute, 2011, pages 4-13 and 49-55 (17 pages)

### *“Advanced Technology Pathways to Global Climate Stability”*

Marty Hoffert et al., Science, 2002 (7 pages)

### *Video: Four Environmental Heresies*

Stewart Brand, TED talk, July 2009

### *“Nuclear Risks, Real and Perceived”*

Radio interview with Jesse Jenkins, April 2011

<http://www.cchange.net/2011/04/05/nuclear-risks-real-perceived-breakthrough-institutes-jesse-jenkins/>

**Total Page Count: 73**

(Technology Debate Readings: Review chapters relevant to assigned technologies)

### *“Energy Technology Perspectives, 2011”*

International Energy Agency (provide digital copy)

### *Energy at the Crossroads*

Vaclav Smil, pages 239-316

## Day 8: Structuring an Energy Technology Revolution

### *“Where Good Technologies Come From”*

Breakthrough Institute, 2010 (36 pages—skim)

### *“Post-Partisan Power”*

Breakthrough Institute, Brookings and AEI, 2010 (22 pages)

### *“Energy Innovation Tracker Analysis”*

Breakthrough Institute, Overview, Trends, and Gaps (19 pages)

### *“Bridging the Clean Energy Valleys of Death”*

Breakthrough Institute, 2011 (5 pages)

### *“Large-scale Deployment of Renewables for Electricity Generation”*

Karsten Neuhoff, Oxford Review of Economic Policy, 2006 (23 pages)

### *Structuring an Energy Technology Revolution*

Charles Weiss and William Bonvillian, MIT Press, Preface and Chapters 1 and 2 (38 pages)

### *The Great Unlocking: A Comprehensive Energy Innovation Strategy for the U.S.*

Richard Lester and David Hart, MIT, April 2011, Executive Summary, 34-42 (30 pages)

**Total Page Count: 173**

## Day 9: Energy Poverty/Competitiveness

### Energy Poverty

#### *Whole Earth Discipline*

Stewart Brand, 2009, “City Planet” and “Urban Promise,” (50 pages)

#### *“Bridging the Energy Poverty Gap: Understanding the Scale of Investment for Universal Energy Access”*

Morgan Bazilian et al., Geopolitics of Energy, October/November 2010 (24 pages)

### Competitiveness

#### *“Strengthening Clean Energy Competitiveness”*

Breakthrough Institute, ITIF, and Brookings Metro, 2010 (24 pages)

#### *“Restoring American Competitiveness”*

Gary Pisano and Willy Shih, Harvard Business Review, 2009 (13 Pages)

#### *“The Chain of Logic to Get to a Robust National Innovation and Competitiveness Policy”*

Robert D. Atkinson, Information Technology and Innovation Foundation, 2011 (16 pages)

**Total Page Count: 127**

### Optional (and recommended):

#### *“The Hartwell Paper: A New Direction for Climate Policy After the Crash”*

Breakthrough Institute et al., 2010 (42 pages—skim)

#### *Rising Tigers, Sleeping Giant*

Executive Summary, Breakthrough Institute and ITIF, 2009, (29 pages—skim)

## Day 10: Futurism

### *"2045: The Year Man Becomes Immortal"*

Lev Grossman, TIME Magazine, February 10, 2011 (10 pages)

### *Video: "A University for the Coming Singularity"*

Ray Kurzweil, 2009 TED Talk (9 minutes)

[http://www.ted.com/talks/ray\\_kurzweil\\_announces\\_singularity\\_university.html](http://www.ted.com/talks/ray_kurzweil_announces_singularity_university.html)

### *"2000 - 2010; A Personal Decade in Review"*

Mark Bruce, I, Technophile blog, December 5, 2009 (7 pages)

### *Whole Earth Discipline*

Stewart Brand, 2009, "Green Dreams" (37 pages)

### *Video: "J Craig Venter: Designing Life"*

60 Minutes November 21, 2010 (~13 mins) <http://www.cbsnews.com/video/watch/?id=7076435n>

### *Video: "Nano Technology"*

- KQED.org Quest video, October 2008, on LBNL/UC Berkeley research on nano tech (10 mins 29 secs)

<http://www.youtube.com/watch?v=sITy14zCvI8&feature=related>

### *"Why the Future Doesn't Need Us"*

Bill Joy, Wired magazine, April 2000 (20 pages)

**Total Page Count: 84**

### **Optional (and recommended):**

### **Video: "The Best Way to Predict the Future is to Shape It"**

Peter Diamandis, March 2010

<http://singularityu.org/videos/2010/03/peter-diamandis/>

Peruse other videos at Singularity University on topics of your choice: <http://singularityu.org/videos/>