

SRING 2018 AED ECON 4330: READING LIST

PART I: INTRODUCTION

1. Course overview and introduction

- Background reading
 - E. Barbier, A. Markandya. Chapter 1, "Introduction," pp. 1-15 and Chapter 3 "Sustainable Development" pp. 36-53 in *A New Blueprint for a Green Economy*, London: Earthscan, 2013.

2. What is a sustainable economy?

- Required reading
 - Neumayer, Eric. 2013. "Weak versus Strong Sustainability," Section 2.3, pp. 22-29, in *Weak versus Strong Sustainability*, Edward Elgar Publishers, 2013
 - Arrow, K., et al. "Economic Growth, Carrying Capacity, and the Environment." *Science* 268: 5210 (1995): 520-521.

3. Externalities and consumption of natural capital

- Required reading
 - P. Dasgupta. "Natural capital as economic assets: a review," Chapter 6, sections 1-5, pp. 120-133, in UNU-IHDP and UNEP (2012). *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge: Cambridge University Press, 2012.
- Additional resources
 - TED talk by Pavan Sukdev "Put A Value on Nature!"
http://www.ted.com/talks/pavan_sukhdev_what_s_the_price_of_nature.html

PART II: WEAK SUSTAINABILITY

4. Capital stocks, flows, and human well-being

- Required readings
 - P. Dasgupta, A. Duraiappah. "Well-Being and Wealth," Sections 1-3, Chapter 1, pp. 13-18 in UNU-IHDP and UNEP (2012). *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge: Cambridge University Press, 2012.
 - P. Dasgupta. "Natural capital as economic assets: a review," Chapter 6, sections 6-8, pp. 133-142, in UNU-IHDP and UNEP (2012). *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge: Cambridge University Press, 2012.
- Additional resources
 - Full report: *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Available online: <http://www.ihdp.unu.edu/article/iwr>

5. Wealth accounting and the Inclusive Wealth Index (IWI)

- Required reading
 - P. Dasgupta, A. Duraiappah. "Well-Being and Wealth," Sections 4-7), Chapter 1, pp. 18-26, in UNU-IHDP and UNEP. *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge: Cambridge University Press, 2012.

6. IWI and a test of weak sustainability

- Required reading
 - P. Muñoz, et al. "Accounting for the inclusive wealth of nations: Empirical evidence," Chapter 2, pp. 27-50, in UNU-IHDP and UNEP (2012). *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge: Cambridge University Press, 2012.
- Additional resources
 - Full report: *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Available online: <http://www.ihdp.unu.edu/article/iwr>

7. Discounting and shadow prices

- Required reading
 - Dynamic efficiency and scarcity rents: Field, Barry. "Efficiency and Sustainability," pp. 69-76 in *Natural Resource Economics*, second edition.
- Background reading
 - Discounting and dynamic efficiency: Goodstein, E. and S. Polasky. "The Social Discount Rate and Dynamic Efficiency," Section 8.5, pp. 151-154, in *Economics and the Environment*. New York: Wiley, 2014

8. Technological change, resource scarcity and limits to growth

- Required reading
 - Krautkraemer, J. "Economics of Scarcity: The State of the Debate," Chapter 3, pp. 54-77. In *Scarcity and Growth Revisited*, D. Simpson, M. Toman, R. Ayres eds. Washington DC: Resources for the Future Press, 2005.
 - Ayres, R. "Resources, Scarcity, Technology and Growth." In pp. 142-154 in *Scarcity and Growth Revisited*, D. Simpson, M. Toman, R. Ayres (editors). Washington DC: Resources for the Future Press, 2005.
- Background reading
 - J. Tierney. "Betting on the Planet," New York Times Magazine (1990). Accessed online 1/4/2013 <http://www.nytimes.com/1990/12/02/magazine/betting-on-the-planet.html>
 - Owens, David. "The Efficiency Dilemma: If our machines use less energy, will we just use them more?" The New Yorker, December 20, 2010. Accessed online: <http://www.newyorker.com/magazine/2010/12/20/the-efficiency-dilemma>

9. Methods for valuing the environment

- Required reading:
 - Goulder, L. and D. Kennedy, Sections 2.3-2.5 of Chapter 2 "Interpreting and estimating the value of ecosystem services," pp. 20-33 in *Natural Capital: Theory and Practice of Mapping Ecosystem Services*, Oxford University Press, 2011

10. Uses of ecosystem service valuation

- Required reading:
 - Goulder, L. and D. Kennedy, Sections 2.1 and 2.2 of Chapter 2 "Interpreting and estimating the value of ecosystem services," pp. 15-20 in *Natural Capital: Theory and Practice of Mapping Ecosystem Services*, Oxford University Press, 2011

11. Benefit cost analysis

- Required reading
 - Hanley, Shrogren, White, Sections 4.1-4.4 of Chapter 4 “Cost-Benefit Analysis and the Environment,” pp. 68-85 in *Introduction to Environmental Economics*, Oxford University Press, 2001.

12. Scenario modeling and trade-offs with InVEST

- Required reading
 - Kennedy, C. M. & Miteva, D. A. et al. (2016). Bigger is better: Improved nature conservation and economic returns from landscape-level mitigation. *Science Advances*, 2(July), 2 : e1501021. <http://doi.org/10.1126/sciadv.1501021>.
- Additional resources
 - InVEST tools: <http://www.naturalcapitalproject.org/invest/>

13. Economics view of value

- Required reading:
 - Hanley, Shrogren, White, Sections 3.1 and 3.2 of Chapter 3 “Valuing the Environment and Natural Resources,” pp. 34-45 in *Introduction to Environmental Economics*, Oxford University Press, 2001.

PART III: STRONG SUSTAINABILITY CONSIDERATIONS

14. Ecological economics and strong sustainability rules

- Required readings
 - H.E. Daly. “Moving Towards a Steady State Economy,” Chapter 1, pp. 31-37 and “Operationalizing Sustainable Development by Investing in Natural Capital,” Chapter 4, pp. 75-80, in *Beyond Growth*. Boston: Beacon Press, 1996.
 - Hanley, N., J. Shogren, B. White. “Sustainability Rules,” Section 6.4.3 of Chapter 6, pp. 136-139, in *Introduction to Environmental Economics*, Oxford: Oxford Press, 2007.
- Additional resources
 - Ecological economics website on sustainable scale: <http://www.sustainable-scale.org/>

15. Ecological footprint analysis and planetary boundaries

- Required readings
 - Borucke et al. “Accounting for demand and supply of the Biosphere’s regenerative capacity: the National Footprint Accounts’ underlying methodology and framework.” *Ecological Indicators*, (2013) 24, pp. 518-533.
 - Rockström, J.; Steffen, W.; Noone, K.; Persson, Å.; Chapin, F. S.; Lambin, E. F.; Lenton, T. M.; Scheffer, M.; et al. 2009. “A safe operating space for humanity” *Nature* 461(7263).
 - Schlesinger et al, Commentary on “A safe operating space for humanity” *Nature* 461(7263) pp 1-8.
- Additional resources and readings
 - Neumeyer, E. “Ecological Footprints: Measuring Sustainability by Land Area,” Sections 6.1.1, pp. 169-175, in *Weak versus Strong Sustainability*, Edward Elgar Publishing, 2013.
 - Global Footprint Network Homepage: www.footprintnetwork.org

16. Risk, uncertainty, and ignorance

- Required reading
 - Neumeyer, E. “Preserving Natural Capital in a World of Risk, Uncertainty and Ignorance,” Chapter 4, Section 1-3, pp. 102-115, in *Weak versus Strong Sustainability*, Cheltenham UK: Edward Elgar Publishing, 2013.

17. Ecosystem dynamics, regime shifts, resilience and uncertainty

- Required reading
 - Sheffer, M. et al. 2001. “Catastrophic shifts in ecosystems.” *Nature* 413, pp. 591-596.
 - Neumeyer, E. “Preserving Natural Capital in a World of Risk, Uncertainty and Ignorance,” Chapter 4, Section 1-3, pp. 102-115, in *Weak versus Strong Sustainability*, Cheltenham UK: Edward Elgar Publishing, 2013.
- Additional resources
 - Videos on resilience <http://rs.resalliance.org/2010/12/13/resilience-and-regime-shift-videos/>

18. Adaptive ecosystem management

- Required reading:
 - U.S. Department of Interior. Chapters 1 & 2 in Adaptive Management, pp. 1-16, 2012, Washington, DC: US Government Printing Office.

19. Greenhouse gas emissions accounting

- Required reading
 - Wiedemann, T. and J. Barrett. “A greenhouse gas footprint analysis of UK Central Government, 1990–2008. *Environmental Science & Policy* (2011), 14(8), pp. 1041–1051
- Additional resources
 - Greenhouse gas protocol developed by WRI and WBCSD: <http://www.ghgprotocol.org/>