

Approaches to Socio-ecological Analysis

FWE 875, Fall 2012

Tuesday/Thursday 9:55–11:10, Russell Labs, A121

Co-instructors

Sean Gillon, sgillon@wisc.edu | Office Hours: Tuesdays 11:15 – 1:00 or by appointment

Adena Rissman, arrissman@wisc.edu | Office Hours: Thursdays 11:15– 1:00 or by appt

Course Description

Linking social and ecological analysis is increasingly recognized as important for addressing persistent social and environmental problems in both academic and policy contexts. Yet social and natural scientists encounter many philosophical and practical challenges when integrating research across disciplines. This course will survey approaches to linking social and ecological analysis across several disciplinary and analytical approaches, including geography, political ecology, environmental anthropology and sociology, human dimensions of global environmental change research, social-ecological system research, network analyses, and others. The course will acquaint students with each approach, examining their strengths, assumptions, and trade-offs. As part of the course, students will have the opportunity to participate in a meta-analysis of current research on social-ecological systems. This analysis will explore how different research efforts define system drivers and boundaries, employ different linking methodologies, and engage key concepts such as resilience, vulnerability, and adaptation. We will examine how these different research approaches create different types of findings and recommendations for social and environmental policy and practice. If desired, graduate students will have the opportunity to explore how choices about research approach may affect their own studies of socio-ecological systems.

Student Evaluation

25% Participation

35% Final paper and presentation

40% Meta-analysis of research articles

Participation

Engaging your colleagues is essential for deepening your understanding of approaches to social-ecological research. We expect everyone to complete the course readings and participate in class discussions. In addition, we will provide training on facilitation, and everyone will be responsible for facilitating discussion on one day. Facilitators should focus on assigned readings and synthesizing course material. Weekly readings should be read before each Tuesday for discussions on that day. The week's facilitator will provide discussion prompts to the class by noon on Monday.

Final paper and presentation

The goal of the final paper is to give you the opportunity to explore your own approach to social-ecological (SE) analysis. Students with well-defined research questions and projects might situate and elaborate on the underpinnings of their approach. Students still developing research projects might explore what approaches seem attractive given their

interests, disciplinary affinities, and trade-offs among approaches. The paper should be 5-7 pages long and in 1.5 spaced Times New Roman 12 point font. It is due by 5:00 PM on Monday, December 17. You will also give a short presentation on your paper at the end of the course. The aim is to give you practice situating your research in a conference-style presentation and provide you opportunity for class feedback.

Meta-analysis of research articles

One course objective is to sharpen critical reading and comparative analytical skills by parsing the methodological approaches of research linking social and ecological systems. As part of the course, students will read and analyze several (~12-15) empirical SE research papers using a provided analytical tool. Students will engage several examples of SE case study research and contribute to a meta-analysis. Core meta-analytical foci include connections between approaches and results, linking epistemologies and methodologies, system boundary definition, governance and market mechanisms, drivers, and results and implications.

WEEK 1

Tuesday, September 4th

Class introduction

Thursday, September 6th

Introduction to social-ecological systems and research

Readings

Norgaard, R.B. and G. Kallis. 2011. Coevolutionary contradictions: prospects for a research programme on social and environmental change. *Geografiska Annaler: Series B, Human Geography* 93(4): 1-12.

Birkenholtz, T. 2011. Network political ecology: Method and theory in climate change adaptation and vulnerability research. *Progress in Human Geography*. Published online 24 October 2011. doi: 10.1177/0309132511421532.

WEEK 2

Tuesday, September 11th

Facilitation training

Thursday, September 13th

Introduction to meta-analytical techniques: Linking epistemology, method, boundaries, drivers, and findings

Agrawal, A. 2001. Common property institutions and sustainable governance of resources. *World Development* 29(10): 1623–1648.

Poteete, A.R. and E. Ostrom. 2007. Fifteen Years of Empirical Research on Collective Action in Natural Resource Management: Struggling to Build Large-N Databases Based on Qualitative Research. *World Development* 36(1): 176-195.

Martin, L.J. B. Blossey, and E. Ellis. 2012. Mapping where ecologists work: biases in the global distribution of terrestrial ecological observations. *Frontiers in Ecology and the Environment* 10(4): 195-201.

WEEK 3

Tuesday, September 18th

Meta-analysis group work: completed example

Thursday, September 20th

Keywords and concepts in socio-ecological research: adaptation

Readings

Smit, B and J. Wandel. 2006. Adaptation, adaptive capacity and vulnerability. *Global Environmental Change* 16(3): 282-292.

Murtinho, F. & T.M. Hayes. 2012. Adaptation in Resource-Dependent Communities: A Call for Greater Methodological Clarity in Adaptation Field Research. *Society & Natural Resources* 25(5): 513-522.

O'Brien, K. 2011. Global Environmental Change II: From adaptation to deliberate transformation. *Progress in Human Geography* 1-10. Published online November 10, 2011, doi:10.1177/0309132511425767.

WEEK 4

Tuesday, September 25th

Keywords and concepts in socio-ecological research: vulnerability

Readings

Turner B. L., R. E. Kasperson, P. A. Matson, J.J. McCarthy, R. W. Corell, L. Christensen, N. Eckley, J. X. Kasperson, A. L. Luers, M. L. Martello, C. Polsky, A. Pulsipher, and A. Schiller. 2003. A framework for vulnerability analysis in sustainability science. *PNAS* 100(14): 8074–8079.

Adger, W.N. 2006. Vulnerability. *Global Environmental Change* 16(3): 268-281.

O'Brien, S. Eriksen, L.P. Nygaard, and A. Schjolden. 2007. Why different interpretations of vulnerability matter in climate change discourses. *Climate Policy* 7(1): 73-88.

Thursday, September 27th

Meta-analysis group work: pilot 1

WEEK 5

Tuesday, October 2nd

Keywords and concepts in socio-ecological research: resilience

Readings

Carpenter, S., Walker, B. and Anderies, J. 2001. From metaphor to measurement: resilience of what to what? *Ecosystems* 4(8): 765–781.

Folke, C. 2006. Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change – Human and Policy Dimensions* 16: 253–267.

Cote, M. and A.J. Nightingale. 2011. Resilience thinking meets social theory: Situating social change in socio-ecological systems (SES) research. *Progress in Human Geography* 36(4): 475–489.

Thursday, October 4th

Meta-analysis group work: pilot 2

WEEK 6

Tuesday, October 9th

Human dimensions of global environmental change

Readings

Jager, J. 2003. Institutions for global environmental change. *Global Environmental Change* 13: 69-73.

O'Brien, K.L. and R.M. Leichenko. 2000. Double exposure: assessing the impacts of climate change within the context of economic globalization. *Global Environmental Change* 10: 221-232.

O'Brien, K.L. and R.M. Leichenko. 2003. Winners and Losers in the Context of Global Change. *Annals of the Association of American Geographers* 93(1): 89-103.

Thursday, October 11th

Meta-analysis group work: discussion of papers 1 and 2

WEEK 7

Tuesday, October 16th

Social-ecological systems and commons research

Readings

Ostrom, E., M.A. Janssen, and J.M. Anderies. 2007. Going beyond panaceas. *Proceedings of the National Academy of Sciences of the United States of America* 104: 15176–15178.

Ostrom, E. 2009. A general framework for analyzing sustainability of social-ecological systems. *Science* 325: 419–422.

Chhatre, A. and A. Agrawal. 2009. Trade-offs and synergies between carbon storage and livelihood benefits from forest commons. *Proceedings of the National Academy of Sciences* 106(42): 17667-17670. *Read comments and responses.*

Thursday, October 18th

Meta-analysis group work: discussion of papers 3 and 4

WEEK 8

Tuesday, October 23rd

Land use change and sustainability science

Readings

Turner II, B.L., E.F. Lambin, and A. Reenberg. 2007. The emergence of land change science for global environmental change and sustainability. *Proceedings of the National Academy of Sciences* 104(52): 20666-20671.

Kates, R.W., Clark, W.C., Corell, R., Hall, J.M., Jaeger, C.C., Lowe, I., McCarthy, J.J., Schellnhuber, H.J., Bolin, B., Dickson, N.M., Faucheux, S., Gallopin, G.C., Grubler, A., Huntley, B., Jager, J., Jodha, N.S., Kasperson, R.E., Mabogunje, A., Matson, P., Mooney, H., 2001. Environment and development—sustainability science. *Science* 292(5517): 641–642.

Kates, R.W. 2011. From the Unity of Nature to Sustainability Science: Ideas and Practice. Working Papers – Center for International Development. Harvard University.

Thursday, October 25th

Meta-analysis group work: Discussion of paper analysis 5 and 6

WEEK 9

Tuesday, October 30th

Nature-society geography

Readings

Castree, N. 2005. *Nature*. London: Routledge. *Selections*.

Zimmerer, K. 2010. Retrospective on nature-society geography: Tracing trajectories (1911-2010) and reflecting on translations. *Annals of the Association of American Geographers* 100(5): 1076-1094.

Prudham, S. 2003. Taming Trees: Capital, Science, and Nature in Pacific Slope Tree Improvement. *Annals of the Association of American Geographers* 93(3): 636–656.

Thursday, November 1st

Meta-analysis group work: Discussion of paper analysis 7 and 8, plus reliability test

WEEK 10

Tuesday, November 6th

Political ecological approaches

Readings

Turner, B.L. and Robbins, P. 2008. Land-change science and political ecology: Similarities, differences, and implications for sustainability science. *Annual Review of Environment and Resources* 33: 295–316.

Peet, R. and M. Watts. 1996/2004. *Liberation Ecologies*. London, Routledge. *Introduction*.

Robbins, P. 2012. *Political Ecology*. Blackwell. *Selections*.

Thursday, November 8th

Meta-analysis group work: Discussion of paper analysis 9 and 10

WEEK 11

Tuesday, November 13th

Research approaches in environmental sociology and anthropology

Readings

Goldman, M. and R.A. Schurman. 2000. Closing the 'great divide': new social theory on society and nature. *Annual Review of Sociology* 26: 563-584.

Head, L. 2010. Cultural ecology: adaptation – retrofitting a concept? *Progress in Human Geography* 34(2): 234-242.

Thursday, November 15th

Meta-analysis group work: Discussion of paper analysis 11 and 12

WEEK 12

Tuesday, November 20th

Ecosystem Services

Readings

Nature. 1998. Audacious bid to value the planet whips up a storm. *Nature* 395: 430.

Daily, G.C. and P.A. Matson. 2008. Ecosystem Services: From theory to implementation. *PNAS* 105: 9455-9456.

Tallis H, Kareiva P, Marvier M, and Chang, A. 2008. An ecosystem services framework to support both practical conservation and economic development. *PNAS* 105: 9457–9464.

Dempsey, J. and M. Robertson. 2012. Ecosystem services: tensions, impurities and points of engagement with neoliberalism. *Progress in Human Geography*. Published online March 13, 2012. DOI: 10.1177/0309132512437076.

Thursday, November 22nd

NO CLASS: THANKSGIVING HOLIDAY

WEEK 13

Tuesday, November 27th

Network and STS analyses

Readings

Gonzales, R. and L. Parrott. 2012. Network theory in the Assessment of Social-Ecological Systems. *Geography Compass* 6(2): 76-88.

Jasanoff, S. 2004. *States of Knowledge: The co-production of science and social order*. London: Routledge. *Selections*.

Thursday, November 29th

Meta-analysis group work: Discussion of paper analysis 13 and 14

WEEK 14

Tuesday, December 4th

Research approach wrap up discussion / Student presentations

Thursday, December 6th

Student presentations

WEEK 15

Tuesday, December 11th

Student presentations, Paper 15 due

Thursday, December 13th

Course closing, Meta-analysis wrap-up discussion, Evaluations

EXAM WEEK

Monday, December 17th

FINAL PAPER DUE BY 5:00 PM