

Oslo Summer School in Comparative Social Science Studies 2017



Climate Change Adaptation and Transformations towards Sustainability

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Main disciplines: Environment and Climate, Human Geography, Social Sciences

Dates: 31 July - 4 August 2016

Course Credits: 10 pts (ECTS)

Objectives

This PhD course explores the relationship between adaptation and transformation, two concepts that are key to understanding societal responses to climate change. The objective of the course is to engage students with the latest theories, frameworks, approaches and methods for addressing two critical questions in solutions-oriented global change research: *What does it mean to successfully adapt to climate change? How can deliberate transformations to sustainability be carried out rapidly, yet in ways that are ethical and equitable?*

Climate change introduces unprecedented challenges to society, not only in terms of impacts, but also in relation to the scale, scope, and magnitude of the responses that are needed to reduce risk and vulnerability. There have been discussions about mainstreaming adaptation into all sectors of society, including overseas development aid, and climate change adaptation is now considered a necessary part of many planning processes. Yet as the observed and projected impacts of climate change become more visible and better understood, it is increasingly recognized that small adjustments are in some cases insufficient and that “transformational adaptations” that involve novel, large-scale actions will be required.

However, there are also more progressive interpretations of adaptation that do not involve merely complying with or adjusting to impacts that are already occurring or expected to occur, but using it as a potential catalyst for transformational change that shifts the balance of political or cultural power in society. Although both adaptation and transformation are important responses to climate change, their relationship is not clear. The course will explore this relationship and consider how the two concepts can contribute to an empowering discourse that supports political agency and collaborative action to address complex global challenges.

Course format

Each session will consist of a 45-minute lecture to introduce the students to the topic. Students are then invited to participate in a conversation about the readings and share their insights and reflections on the topic. The lectures will present different perspectives and frameworks for research on transformations, and consider different methods and approaches relevant to research *for* transformation, discussing the distinction and implications for integrated science.

COURSE OUTLINE

Session 1 (Day 1, Morning):

Climate Change – The context for transformations

The first lecture will present an introduction and framing of the course, including a discussion of anthropogenic climate change based on the latest research. Focusing on the IPCC Fifth Assessment Synthesis Report and recent articles describing risks and vulnerabilities associated with climate extremes, sea level rise, and loss of biodiversity, the lecture will consider scenarios for the future and their implications for human security, contextualizing the need for climate change adaptation and transformations to sustainability.

Readings:

- Levermann, A. 2013. The multimillennial sea-level commitment of global warming. *PNAS*, 110 (34): 13745-13750. (6 pages)
- Urban, M.C. 2015. Accelerating extinction risk from climate change. *Science* 348, 571 (2015). (3 pages) (<https://www.sciencemag.org/content/348/6234/571.full>)
- Friedlingstein, P. et al. 2014. Persistent growth of CO₂ emissions and implications for reaching climate targets. *Nature Geoscience*, 7. (7 pages)

Session 2 (Day 1, Afternoon):

Responses to climate change: Adaptation, mitigation and transformation

This lecture will focus on potential responses to climate change. It will look at scenarios for mitigating greenhouse gas emissions and the need for adapting to impacts. It will then consider how “transformation” relates to these two responses within IPCC and UNFCCC discourses, and within wider discussion about sustainability.

Readings:

- Rogelj, C. J., G. Luderer, R. C. Pietzcker, E. Kriegler, M. Schaeffert, V. Krey and K. Riahi. 2015. Energy system transformations for limiting end-of century warming to below 1.5C. *Nature Climate Change* 5: 519-527. (8 pages)
- Schipper, L.F.E and I. Burton, 2008. Understanding Adaptation. Origins, Concepts, Practice and Policy. In *The Earthscan Reader on Adaptation to Climate Change*, L.F.E. Schipper and I. Burton (eds), Earthscan: 1-11 (12 pages)
- Shaw, A., S. Burch, F. Kristensen, J. Robinson, and A. Dale, 2014. Accelerating the sustainability transition: Exploring synergies between adaptation and mitigation in British Columbian communities. *Global Environmental Change*, 25: 41-51. (10 pages)

Session 3 (Day 2, Morning):

The meaning of adaptation

This lecture focuses on the meaning of adaptation from three perspectives, within the context of climate change, from an evolutionary perspective, and in general usage. It will consider how and why adaptation has become such an important theme within climate change research policy and consider how successful adaptation is defined and assessed. What are the limits to adaptation?

Readings:

- Moser, S. C. and M. T. Boykoff, 2013. Climate change and successful adaptation: The scope of the challenge. In: *Successful Adaptation to Climate Change: Linking Science and Practice in a Rapidly Changing World*, ed. S.C. Moser and M.T. Boykoff: 1-33, Routledge, London. Routledge. Chapter 1 (34 pages)
- Hetherington R. and R.G.B Reid, 2010. *The Climate Connection Climate Change and Modern Human Evolution*. Cambridge. Chapter 1 Introduction : 1-12. (13 pages)
- Orlove, B. 2005. Human adaptation to climate change: a review of three historical cases and some general perspectives. *Environmental Science & Policy*, 8(6): 589-600. (12 pages)
(<http://www.sciencedirect.com/science/article/pii/S1462901105001085>)
- Pelling, M. 2011. *Adaptation to Climate Change: From Resilience to Transformation*. London: Routledge. Chapters 1, 2: 3-53 (50 pages)
(<https://www.routledge.com/products/9780415477505>)
- Adger, W. N., S. Dessai, M. Goulden, M. Hulme, I. Lorenzoni, D. R. Nelson, L. O. Naess, J. Wolf, and A. Wreford, 2009. Are there social limits to adaptation to climate change? *Climatic Change*, 93: 335-354. (20 pages) 10.1007/s10584-008-9520-z.
- Nelson, D.R., W. N. Adger, W.N. and K. Brown, 2007. Adaptation to environmental change: Contributions of a resilience framework. *Annual Review of Environment and Resources*, 32: 395-419. (24 pages)
(<http://www.annualreviews.org/doi/abs/10.1146/annurev.energy.32.051807.090348>)
- Kates, R.W., W.R. Travis and T.J. Wilbanks, 2012. Transformational adaptation when incremental adaptations to climate change are insufficient. *PNAS* 109(19): 7156– 7161. (6 pages) (<http://www.pnas.org/content/109/19/7156.full.pdf>)

- Moser, S.C. and J. A. Ekstrom, 2010. A framework to diagnose barriers to climate change adaptation. *PNAS*, 107(51): 22026 – 22031. (6 pages)

Session 4 (Day 2, Afternoon):

The politics of adaptation

This lecture considers what adaptation means from a wider social and political context. What happens when one group's adaptation contributes to the vulnerability of others? In what cases is adaptation considered problematic? Why has it been considered such a positive, apolitical process?

Readings:

- Taylor, M. 2015. Socialising climate. Chapter 2 in *The Political Ecology of Climate Change Adaptation. Livelihoods, agrarian change and the conflicts of development*. Routledge: 26-49. (24 pages).
(<https://www.routledge.com/products/9780415703819>)
- Pelling, M. 2010. *Adaptation to Climate Change: From Resilience to Transformation*. London: Routledge. Chapter 3, 4: 55-83. (29 pages)
(<https://www.routledge.com/products/9780415477505>)
- Bassett, T. J. and C. Fogelman, 2013. Déjà vu or something new? The adaptation concept in the climate change literature. *Geoforum*, 48: 42–53. (3 pages)
doi:10.1016/j.geoforum.2013.04.010.
- O'Brien, K. 2012. Global Environmental Change II: From Adaptation to Deliberate Transformation. *Progress in Human Geography*, 36(5): 667-676. (10 pages).

Sesssion 5 (Day 3, Morning):

The adaptive challenge of climate change

This lecture discusses adaptation to climate change from a broader and deeper perspective. A distinction is made between technical problems and adaptive challenges. The former can be addressed with greater expertise and innovation, while the later also draws attention to mindsets. The characteristics of adaptive challenges are discussed, along with their implications for climate change responses.

Readings:

- Biagini, B., R. Bierbaum, M. Stults, S. Dobardzic and S.M. McNeely, 2014. A typology of adaptation actions: A global look at climate adaptation actions financed through the Global Environment Facility. *Global Environmental Change*, 25(1): 97–108. (12 pages)
- Fazey, I., R. M. Wise, C. Lyon, C. Câmpeanu, P. Moug & T. E. Davies, 2015. Past and future adaptation pathways. *Climate and Development*, DOI: 10.1080/17565529.2014.989192 (20 pages)
- Heifetz, R., A. Grashow and M. Linsky, 2009. *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World*. Boston, MA: Harvard Business Press. Pages 1-40 (40 pages)
- O'Brien K. and E. Selboe, 2015. Climate change as an Adaptive Challenge. In *The Adaptive Challenge of Climate Change*. London: Cambridge: 1-23. (24 pages)

Session 6 (Day 3, Afternoon):

Adaptive challenges: the personal and political dimensions

This lecture describes why adaptive challenges are both personal and political, drawing attention to the role of beliefs, values and worldviews in approaches to adaptation and the implications for transformations. The role of personal transformation in change processes, and what the limits are as a means to systemic change will also be discussed. It will draw attention to the role of different practices in creating change, and what an emerging spiritual worldview implies for sustainability.

Readings:

- O'Brien K. and E. Selboe, 2015. Social Transformation: The Real Adaptive Challenge. In *The Adaptive Challenge of Climate Change*. London: Cambridge: 311-324 (13 pages)
- O'Brien, K. and G. Hochachka, 2010. Integral Adaptation to Climate Change. *Journal of Integral Theory and Practice*, 5(1): 89–102. (14 pages)
- Hedlund-de Witt, A. 2011. The rising culture and worldview of contemporary spirituality: A sociological study of potentials and pitfalls for sustainable development. *Ecological Economics*, 70: 1057-1065. (8 pages)
(<http://www.sciencedirect.com/science/article/pii/S0921800911000486>)
- Schlitz, M.M., C. Vieten and E.M. Miller, 2010. Worldview transformation and the development of social consciousness. *Journal of Consciousness Studies*, 17 (7-8): 18-36. (19 pages)
- Kegan, R. and K. Lahey, 2009. Reconceiving the Challenge of Change. In *Immunity to Change*. Boston: Harvard Business Press. Chapter 1: 11-30. (20 pages)
- Marshall, N.A., Park, S.E., Adger, W.N., Brown, K., and Howden, S.M. (2012) Transformational capacity and the influence of place and identity. *Environmental Research Letters* 7(3): 1-9. (9 pages)
- Swyngedouw, E. 2010. Apocalypse Forever? Post-political Populism and the Spectre of Climate Change. *Theory, Culture & Society*, 27(2–3): 213–232. (20 pages)
- Stirling, A. 2015. Emancipating transformations: From controlling 'the transition' to culturing plural radical progress. Pages 54-67 in I. Scoones, M. Leach and P. Newell (eds.), *The Politics of Green Transformations*. London: Earthscan. (14 pages)

Session 7 (Day 4, Morning):

Transformation in theory and practice

This lecture discusses transformation, including how it has been defined and interpreted what it looks like in practice, and why it means different things to different people.

Readings:

- Feola, G. 2015. Societal transformation in response to global environmental change: a review of emerging concepts. *AMBIO*, 44(5): 376-390. (14 pages)
- F.W. 2011. The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental Innovation and Societal Transitions* 1: 24-40. (17 pages)
- Göpel, M. 2016. What Political Economy Adds to Transformation Research. Chapter 2 in *The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations go Hand in Hand*. Berlin: Springer (39 pages)
- O'Brien, K. and L. Sygna, 2013. Responding to climate change: The three spheres of transformation. *Proceedings of Transformation in a Changing Climate*, 19- 21 June 2013, Oslo, Norway. University of Oslo: 16-23. (7 pages)
- Patterson, J., K. Schulz, J. Vervoot, S. van der Hel, O. Widerberg, C. Adler, M. Hurlbert, K. Anderton, M. Sethi and A. Barau. 2016. Exploring the governance and politics of transformations towards sustainability. In *Environmental Innovation and Societal Transitions*. (16 pages)
- Pelling, M., 2011. *Adaptation to Climate Change: From Resilience to Transformation*. London: Routledge. Chapter 5: 83-105. (23 pages)
<https://www.routledge.com/products/9780415477505>
- Westley, F., P. Olsson, C. Folke, T. Homer-Dixon, H. Vredenburg, D. Loorbach, J. Thompson, M. Nilsson, E. Lambin, J. Sendzimir, B. Banerjee, V. Galaz and S. van der Leeuw, 2011. Tipping toward sustainability: Emerging pathways of transformation. *AMBIO* 40(7): 762-780. (19 pages)
<http://link.springer.com/article/10.1007%2Fs13280-011-0186-9>

Session 8 (Day 4, Afternoon):

Social change and systems change

This lecture focuses on theories of social change, including understandings of causality and the role of individuals in change processes.

Readings:

- Geels, F.W., 2010. Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy* 39: 495-510. (16 pages)
- Gillard, R., A. Gouldson, J. Paavola and J. Van Alstine. 2016. Transformational responses to climate change: beyond a systems perspective of social change in mitigation and adaptation. *WIREs Climate Change*, 7(2): 251-265. (15 pages)
- Meadows, D.H. (2009) *Thinking in Systems: A Primer*. (edited by Diana Wright). London: Earthscan. Chapter 3: 74-85, Chapter 6: 145-165. (33 pages)
- Reckwith, A. 2002. Toward a Theory of Social Practices: A Development in Culturalist Theorizing. *European Journal of Social Theory*, 5(2): 243-263. (22 pages)
- Shove, E. 2010. Beyond the ABC: Climate change policy and theories of social change. *Environment and Planning A*, 42: 1273 – 1285. (13 pages)
- Ostrom, E. 2013. Do institutions for collective action evolve? *JBioecon.* 16: 3-30. (28 pages) DOI 10.1007/s10818-013-9154-8
- Costanza, R. 2011. A theory of socio-ecological system change. *Journal of Bioeconomics*, 16(1): 39-44. (6 pages)
<http://link.springer.com/article/10.1007/s10818-013-9165-5>
- Waddell, Steve, Sandra Waddock, Sarah Cornell, Domenico Dentoni, Milla McLachlan, and Greta Meszoely. 2015. "Large Systems Change: An Emerging Field of Transformation and Transitions." *Journal of Corporate Citizenship* (58):5-30.

Session 9 (Day 5, Morning):

Studying Change: Methodological perspectives on adaptation and transformation

This lecture considers methods for doing research on adaptation and transformation processes, and the tensions between subjective and objective research. Action research, action logics and Q methodology will be presented as examples of methods that account for researchers in the research process.

Readings:

- Rooke, D. and W.R. Torbert, 2005. Seven Transformations of Leadership, *Harvard Business Review*, April 2005. (21 pages) <https://hbr.org/2005/04/seven-transformations-of-leadership#>
- Bradbury, H. 2015. How to Situate and Define Action Research. In H. Bradbury, editor, *Sage Handbook of Action Research*. London: Sage: 1-13. (14 pages)
- Parkinsa, J. R., C. Hempel, T.M. Beckley, R.C. Stedman and K. Sherren, 2015. Identifying energy discourses in Canada with Q methodology: Moving beyond the environment versus economy debates. *Environmental Sociology*, published online 24 Jun: 1-11. (12 pages)
<http://www.tandfonline.com/doi/abs/10.1080/23251042.2015.1054016>

Session 10 (Day 5, Afternoon):

Making change happen

The course will conclude by considering adaptation and transformation as closely related social processes and focuses on how they come about. This lecture discusses the concepts of transformative agency, political agency and the roles of individuals, groups, and social movements in transformation processes. Notions of power and empowerment will be discussed, including the role of collaborative power as a means to build coalitions for change. We will also focus on the role of paradigms and discuss how do they change, drawing on examples from an emerging literature on quantum social theory and new materialism.

Readings:

- Westley, F. R., O. Tjornbo, L. Schultz, P. Olsson, C. Folke, B. Crona and Ö. Bodin. 2013. A theory of transformative agency in linked social-ecological systems. *Ecology and Society*, 18(3): 27. (16 pages) <http://dx.doi.org/10.5751/ES-05072-180327>
- O'Brien, K., 2015. Political agency: The key to tackling climate change. *Science*, 350, 1170. DOI: 10.1126/science.aad0267 (2 pages)
- O'Brien, K. 2016. Climate change and social transformations: Is it time for a quantum leap? *WIREs Climate Change*, 7(5): 618-626. (8 pages) doi: 10.1002/wcc.413.
- Slaughter, A.M. 2011, A New Theory for the Foreign-Policy Frontier: Collaborative Power. *The Atlantic*, 30 November. (5 pages) <http://www.theatlantic.com/international/archive/2011/11/a-new-theory-for-the-foreign-policy-frontier-collaborative-power/249260/>
- Newell, P. 2015. The Politics of Green Transformations in Capitalism. Pages 68-85 in I. Scoones, M. Leach and P. Newell (eds.), *The Politics of Green Transformations*. London: Earthscan. (18 pages)
- Feola, G. and R. Nunes, 2014. Success and failure of grassroots innovations for addressing climate change: The case of the Transition Movement. *Global Environmental Change*, 24: 232-250. (19 pages) ISSN 0959-3780 doi: 10.1016/j.gloenvcha.2013.11.011 839
- Bennett, E. M. Solan, R. Biggs, T. McPhearson. A. V. Norström, P. Olsson, L. Pereira, G. D. Peterson, C. Raudsepp-Hearne, F. Biermann, S. Carpenter, E. C. Ellis, T. Hichert, V. Galaz, M. Lahsen, M. Milkoreit, B. M. López, K. A. Nicholas, R. Preiser, G. Vince, J. M. Vervoort and J. Xu. 2016. Bright spots: seeds of a good Anthropocene. *Frontiers in Ecology*, 14(8): 441-448. (9 pages)

- RECOMMENDED/OPTIONAL READING: Peat, D. 2008. *Gentle Action: Bringing Creative Change to a Turbulent World*. Pari Publishing (176 pages)

Full reading list

- Adger, W. N., S. Dessai, M. Goulden, M. Hulme, I. Lorenzoni, D. R. Nelson, L. O. Naess, J. Wolf, and A. Wreford, 2009. Are there social limits to adaptation to climate change? *Climatic Change*, 93: 335-354. (20 pages) 10.1007/s10584-008-9520-z.
- Bassett, T. J. and C. Fogelman, 2013. Déjà vu or something new? The adaptation concept in the climate change literature. *Geoforum*, 48: 42–53. (3 pages) doi:10.1016/j.geoforum.2013.04.010.
- Bennett, E. M. Solan, R. Biggs, T. McPhearson. A. V. Norström, P. Olsson, L. Pereira, G. D. Peterson, C. Raudsepp-Hearne, F. Biermann, S. Carpenter, E. C. Ellis, T. Hichert, V. Galaz, M. Lahsen, M. Milkoreit, B. M. López, K. A. Nicholas, R. Preiser, G. Vince, J. M. Vervoort and J. Xu. 2016. Bright spots: seeds of a good Anthropocene. *Frontiers in Ecology*, 14(8): 441-448. (9 pages)
- Biagini, B., R. Bierbaum, M. Stults, S. Dobardzic and S.M. McNeely, 2014. A typology of adaptation actions: A global look at climate adaptation actions financed through the Global Environment Facility. *Global Environmental Change*, 25(1): 97–108. (12 pages)
- Bradbury, H. 2015. How to Situate and Define Action Research. In H. Bradbury, editor, *Sage Handbook of Action Research*. London: Sage: 1-13. (14 pages)
- Costanza, R. 2011. A theory of socio-ecological system change. *Journal of Bioeconomics*, 16(1): 39-44. (6 pages) <http://link.springer.com/article/10.1007/s10818-013-9165-5>
- Fazey, I., R. M. Wise, C. Lyon, C. Câmpeanu, P. Moug & T. E. Davies, 2015. Past and future adaptation pathways. *Climate and Development*, DOI: 10.1080/17565529.2014.989192 (20 pages)
- Feola, G. 2015. Societal transformation in response to global environmental change: a review of emerging concepts. *AMBIO*, 44(5): 376-390. (14 pages) <http://link.springer.com/article/10.1007/s13280-014-0582-z>
- Feola, G. and R. Nunes, 2014. Success and failure of grassroots innovations for addressing climate change: The case of the Transition Movement. *Global Environmental Change*, 24: 232-250. (19 pages) ISSN 0959-3780 doi: 10.1016/j.gloenvcha.2013.11.011

- Friedlingstein, P. et al. 2014. Persistent growth of CO₂ emissions and implications for reaching climate targets. *Nature Geoscience*, 7. (7 pages)
- Geels, F.W., 2010. Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy* 39: 495-510. (16 pages)
- Geels, F.W., A. McMeekin, J. Mylan, and D. Southerton, 2015. A critical appraisal of Sustainable Consumption and Production research: The reformist, revolutionary and reconfiguration positions, *Global Environmental Change*, 34: 1-12. (13 pages)
- Gillard, R., A. Gouldson, J. Paavola and J. Van Alstine. 2016. Transformational responses to climate change: beyond a systems perspective of social change in mitigation and adaptation. *WIREs Climate Change*, 7(2): 251-265. (15 pages)
- Göpel, M. 2016. What Political Economy Adds to Transformation Research. Chapter 2 in *The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations go Hand in Hand*. Berlin: Springer. (39 pages)
- Hedlund-de Witt, A. 2011. The rising culture and worldview of contemporary spirituality: A sociological study of potentials and pitfalls for sustainable development. *Ecological Economics*, 70: 1057-1065. (8 pages)
(<http://www.sciencedirect.com/science/article/pii/S0921800911000486>)
- Heifetz, R., A. Grashow and M. Linsky, 2009. *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World*. Boston, MA: Harvard Business Press. Pages 1-40 (40 pages)
- Hetherington R. and R.G.B Reid, 2010. *The Climate Connection Climate Change and Modern Human Evolution*. Cambridge. Chapter 1 Introduction : 1-12. (13 pages)
- IPCC, 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp: 39-74 (35 pages)
- Kates, R.W., W.R. Travis and T.J. Wilbanks, 2012. Transformational adaptation when incremental adaptations to climate change are insufficient. *PNAS*, 109(19): 7156– 7161. (6 pages) (<http://www.pnas.org/content/109/19/7156.full.pdf>)
- Kegan, R. and K. Lahey. 2009. *Reconceiving the Challenge of Change. In Immunity to Change*. Boston: Harvard Business Press. Chapter 1: 11-30. (20 pages)
- Levermann, A. 2013. The multimillennial sea-level commitment of global warming. *PNAS*, 110 (34): 13745-13750. (6 pages)
- Lonsdale, K., P. Pringle and B. Turner, 2015. Transformative adaptation: what it is, why it matters & what is needed. UK Climate Impacts Programme, University of Oxford, Oxford, UK. (40 pages) <https://www.weadapt.org/knowledge->

base/transforming-governance/transformational-adaptation?utm_content=buffer53e4a&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

- Marshall, N.A., Park, S.E., Adger, W.N., Brown, K., and Howden, S.M. (2012) Transformational capacity and the influence of place and identity. *Environmental Research Letters* 7(3): 1-9. (9 pages)
- Maxey, L., T. Henfrey, S. Chamberline, C. Bird and J. Gonzalez, 2015. Radical Civic Transitions: Networking and Building Civic Solutions. *ACME: An International E-Journal for Critical Geographies*, 14(2): 432-441. (10 pages)
- Meadows, D.H. (2009) *Thinking in Systems: A Primer*. (edited by Diana Wright). London: Earthscan. Chapter 3: 74-85, Chapter 6: 145-165. (33 pages)
- Moser, S.C. and J. A. Ekstrom, 2010. A framework to diagnose barriers to climate change adaptation. *PNAS*, 107(51): 22026 – 22031. (6 pages)
- Moser, S. C. and M. T. Boykoff, 2013. Climate change and successful adaptation: The scope of the challenge. In: *Successful Adaptation to Climate Change: Linking Science and Practice in a Rapidly Changing World*, ed. S.C. Moser and M.T. Boykoff: 1-33, Routledge, London. Routledge. Chapter 1 (34 pages)
- Nelson, D.R., W. N. Adger, W.N. and K. Brown, 2007. Adaptation to environmental change: Contributions of a resilience framework. *Annual Review of Environment and Resources*, 32: 395-419. (24 pages)
(<http://www.annualreviews.org/doi/abs/10.1146/annurev.energy.32.051807.090348>)
- Newell, P. 2015. The Politics of Green Transformations in Capitalism. Pages 68-85 in I. Scoones, M. Leach and P. Newell (eds.), *The Politics of Green Transformations*. London: Earthscan. (18 pages)
- O'Brien, K. and G. Hochachka, 2010. Integral Adaptation to Climate Change. *Journal of Integral Theory and Practice*, 5(1): 89–102. (14 pages)
- O'Brien, K. 2012. Global Environmental Change II: From Adaptation to Deliberate Transformation. *Progress in Human Geography*, 36(5): 667-676. (10 pages).
- O'Brien, K. and L. Sygna, 2013. Responding to climate change: The three spheres of transformation. Proceedings of Transformation in a Changing Climate, 19- 21 June 2013, Oslo, Norway. University of Oslo: 16-23. (7 pages)
- O'Brien K. and E. Selboe 2015. Climate change as an Adaptive Challenge. In *The Adaptive Challenge of Climate Change*. London: Cambridge: 1-23. (24 pages)

- O'Brien K. and E. Selboe, 2015. Social Transformation: The Real Adaptive Challenge. In *The Adaptive Challenge of Climate Change*. London: Cambridge: 311-324 (13 pages)
- O'Brien, K., 2015. Political agency: The key to tackling climate change. *Science*, 350, 1170. DOI: 10.1126/science.aado267 (2 pages)
- O'Brien, K. 2016. Climate change and social transformations: Is it time for a quantum leap? *WIREs Climate Change*, 7(5): 618-626. (8 pages) doi: 10.1002/wcc.413.
- Orlove, B. 2005. Human adaptation to climate change: a review of three historical cases and some general perspectives. *Environmental Science & Policy*, 8(6): 589-600. (12 pages) (<http://www.sciencedirect.com/science/article/pii/S1462901105001085>)
- Ostrom, E. 2013. Do institutions for collective action evolve? *JBioecon.*, 16: 3-30. (28 pages) DOI 10.1007/s10818-013-9154-8
- Parkinsa, J. R., C. Hempel, T.M. Beckley, R.C. Stedman and K. Sherren, 2015. Identifying energy discourses in Canada with Q methodology: Moving beyond the environment versus economy debates. *Environmental Sociology*, published online 24 Jun: 1-11. (12 pages)
<http://www.tandfonline.com/doi/abs/10.1080/23251042.2015.1054016>
- Patterson, J., K. Schulz, J. Vervoot, S. van der Hel, O. Widerberg, C. Adler, M. Hurlbert, K. Anderton, M. Sethi and A. Barau. 2016. Exploring the governance and politics of transformations towards sustainability. *Environmental Innovation and Societal Transitions*. Available online 14 September 2016. In press. (16 pages)
- Peat, D. 2008. *Gentle Action: Bringing Creative Change to a Turbulent World*. Paris Publishing (176 pages) (Recommended/Optional reading)
- Reckwith, A. 2002. Toward a Theory of Social Practices: A Development in Culturalist Theorizing. *European Journal of Social Theory*, 5(2): 243-263. (22 pages)
- Pelling, M. 2011. *Adaptation to Climate Change: From Resilience to Transformation*. London: Routledge. Chapter 3, 4: 55-83. (29 pages)
<https://www.routledge.com/products/9780415477505>)
- Pelling, M. 2011. *Adaptation to Climate Change: From Resilience to Transformation*. London: Routledge. Chapters 1, 2: 3-53 (50 pages)
<https://www.routledge.com/products/9780415477505>)
- Pelling, M. 2011. *Adaptation to Climate Change: From Resilience to Transformation*. London: Routledge. Chapter 5: 83-105. (23 pages)

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The lecturer

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