

Teaching Approach and Abilities



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Teaching Philosophy

“Reading furnishes the mind only with materials of knowledge;
it is thinking that makes what we read ours.”

- John Locke (1706)
Of the Conduct of the Understanding

I deeply enjoy learning and teaching and believe that the greatest challenge in teaching is to give students materials, space and support to find the courage to use their own understanding (*sic* Kant). My curiosity and enthusiasm for learning are, I believe, key to my success with students. I view fun and rigorous scholarship as comfortable companions and am keen to inspire students to discover their burning questions and topics of interest. I also believe that one must first learn the rules, before one can break them with style; I take foundation building and skill development seriously and expect my students to do the same.

Reflecting my work with theories of human cognition, I try to approach each student as an individual, with their own unique suite of learning capacities and interests. Where personalised instruction is not possible due to class size, I try to design lessons and materials in such a way that they are accessible through a range of learning styles, including, for example, learning by doing and visual learning in addition to learning by reading and hearing.

Teaching Experience

I have taught politics, statistics and economics at undergraduate (economics) and graduate (politics and statistics) levels. I have also provided pastoral, *in loco parentis*, support to several students during my time working at the Helmholtz Centre for Environmental Research - UFZ and have always received very positive feedback regarding my abilities as a teacher.

I have served as an invited lecturer on many occasions and am a competent public speaker. Although my direct experience as a lecturer is limited.

As a university lecturer, I have served formally in the following capacities:

Queen's University of Belfast,
Belfast, BT7 1NN, Northern Ireland.

Gibson Institute for Land, Food and Environment
MSc Course in Leadership for Sustainable Development

Lecturer on Science for Sustainable Development
(Oct., 2005, Jan., 2006)

This is a one year MSc program oriented toward giving practitioners and recent graduates the skills and understanding that they will need to serve as leaders in the environmental governance of Northern Ireland. It supports students pursuing career paths within public administration, politics, business, non-profit organisation work and academia.

In addition to a basic Masters degree curriculum and a practical placements program, the course also includes a series of special seminars on key sustainable development topics, including environmental ethics, environmental law and the seminar that I conducted, which addresses the role of science and scientists in sustainable development.

I was invited to prepare and conduct the first 'science module' for the course in 2005 and was invited back to give the seminar again in 2006.

Responsibilities included: design of the lesson plan and selection of readings; coordination of guest speakers; formal lecturing; group discussion moderation.

The New School for Social Research,
New York, NY, 10011, USA.

Robert J. Milano Graduate School of Management and Urban Policy
Quantitative Methods of Statistical Analysis

Teaching Assistant,
(Jan., 1996 – May, 1997)

The Milano Graduate School is part of the New School University system and is the most applied school within the university, having a focus on management and policy, with specialisations in urban studies, health care and non-profit management. The statistical analysis taught in the course covered all the general basics required to conduct policy analyses: i.e. instruction in measures of central tendency, correlation, goodness of fit and linear regression analysis, data management and manipulation, chart creation and reading, error analysis and reporting and use of the statistical analysis software package SPSS.

The student body of the Milano Graduate School is very mixed and includes both recent graduates and mature practitioners, with considerable real world experience but limited academic training. These mature students tended to have particular difficulties with the statistical analysis course and I began tutoring several of my fellow students

on an informal basis when I took the course. I achieved top marks in the course and was asked if I would please serve as its teaching assistant.

For a period of one and a half years I served as the primary teaching assistant for this course and was actively engaged in lecturing and supporting the students.

Responsibilities included: lecturing; design, co-ordination and moderation of tutorials; training students in the use of statistical analysis software; provision of remedial mathematics and basic computer skills instruction; grading of course-work and examination papers.

New Jersey Institute of Technology (NJIT),
Newark, New Jersey, USA.

Department of Economics
Introduction to Economics

Replacement Lecturer
(Jan., 1996 – Jan., 1997)

The is a leading technical university in the New York metropolitan area and this course was a basic, introductory foundation economics course, taught to a student body undertaking mainly BSc studies in applied engineering.

As part of my duties as assistant to a Senior Scientist at the Institute for Economic Analysis in Manhattan, who had teaching duties at the NJIT, I presented several pre-planned introductory economics, drafted by her. The lecturing was occasional, taking place when she was out of the country conducting field research.

Sample Course Outlines

Sample Course 1 of 2

Politics, Science and Nature: an introduction to the role of politics in environmental science and to the role of environmental science in politics

This course is intended to provide students with a general introduction to the topic of environmental science for policy: the focus of instruction is the question of how relationships between power and knowledge influence and are influenced by (1) concepts of nature and (2) conceptualisations of relationships between humans and non-humans.

Placing current political and scientific debates concerning environmental issues (e.g. climate change, endangered species protection and environmental planning and management) within an historical and political context, the lectures explore the origins and implications of the controversial role of science in 21st century environmental politics.

Suitable for advanced undergraduate and for graduate students

Class size: 30-300

Lecture Period: 15 weeks

Assignments: three short essays

Week 1: General Introduction: Course Overview: Rio, Jo'Burg and the IPCC

Learning Objectives:

- appreciation that scientific knowledge and concepts of nature are social constructs with material consequences
- basic knowledge of the history of the international World Summits on Sustainable Development, their pursuant treaties, and the role of sustainability science in the design and implementation of these political strategies

Reading to be completed for the **following** week (week 2):

Clark, Mary E. (1989). *Ariadne's Thread: The Search for New Modes of Thinking*. New York: St. Martin's Press. Ch 1: The Future: a search for values: pp 3-26.

Clark, Mary E. (1989). *Ariadne's Thread: The Search for New Modes of Thinking*. New York: St. Martin's Press. Ch 8: On acquiring a world view: pp 213-244.

Boix Mansilla, V. and Gardner, H. (2003) *Assessing Interdisciplinary Work at the Frontier: An Empirical Exploration of "Symptoms of Quality"*, Interdisciplinary Studies Project Project Zero, Harvard Graduate School of Education.

Farrell, K.N., Kemp, R., Hinterberger, F, Rammel, C. and Ziegler, R. (2005) 'From * for * to *Governance for Sustainable Development* in Europe – what is at stake for further research?' *International Journal of Sustainable Development* 8(1/2):127-150.

Lawrence, Roderick J. and Després, Carole (2004) 'Introduction: Futures of Transdisciplinarity' Special Issue on Transdisciplinarity *Futures* 36: 397–405.

Assignment:

none

Week 2: Inter- Multi- and Trans- disciplinary Science: complex problems complex methods

Learning Objectives:

- ability to distinguish between multi- inter- and trans- disciplinarity and appreciation for the ambiguities in these distinctions
- beginnings of an appreciation for which modes of research are appropriate for engaging which kinds of problems
- beginnings of a critical position regarding which of these approaches is best suited for use in conducting environmental science for policy

Reading to be completed for the **following** week (week 3):

Allen, T. F. H., Joseph A. Tainter, J. Chris Pires and Thomas W. Hoekstra (2001). "Dragnet Ecology – “Just the Facts, Ma'am”": The Privilege of Science in a Postmodern World." *BioScience* 51(6): 475-485.

IPCC (2007). *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, New York. Summary for Policy Makers. pp 1-18.

Millennium Ecosystem Assessment (2004). *Ecosystems and Human Well-being: A Framework for Assessment*, Island Press, Washington, DC. Part I, Ecosystems and Human Well-being: General Synthesis. Summary for Decision Makers. pp 1-18.
Funtowicz, Silvio, O. and Jerome R. Ravetz (1992). 'The Good, the True and the Post-modern' *Futures* 24(10)963-976.

Assignment:
none

Week 3: The Politics of Sustainability Science

Learning Objectives:

- appreciation for the basic tasks of the interdisciplinary research teams dealing with major sustainability science issues
- understanding of the fact /value dilemma of post normal science
- initial appreciation for the political and methodological implication of this dilemma

Reading to be completed for the **following** week (week 4):

Lovelock, J. (2000[1979]). *Gaia: A new look at life on Earth* Oxford University Press, London. Preface: pp vii-xix.

Lovelock, J. (2000[1979]). *Gaia: A new look at life on Earth* Oxford University Press, London. Chapter 3: The Recognition of Gaia: pp 30-43.

Trosper, R. (2002). 'Northwest coast indigenous institutions that supported resilience and sustainability' *Ecological Economics* 41: 329-344.

Assignment (to be submitted before the Lecture on week 6):

Essay 1: a three to four page essay on ONE of the following topics

- My personal vision of Nature and how it connects to my visions of Politics and Science
- The Politics of Sustainability Science: how the a western concept of Nature has influenced international 21st century politics of science
- Methodological challenges in Interdisciplinary Environmental Science for Policy
- International Science Policy Collaborations of the 20th Century

Week 4: The Nature of Nature (1 of 2)

Learning Objectives:

- initial appreciation for the interplay between scientific investigation and conceptualisations of nature
- critical understanding of the constructed character of nature and the diversity of cultural conceptualisations of nature

Reading to be completed for the **following** week (week 5):

Plumwood, Val (1993) *Feminism and the Mastery of Nature*. Routledge, London. Chapter 5: Mechanism and mind/nature dualism. pp 120-140.

Soper, Kate (1995). *What is Nature? Culture, Politics and the non-Human* Blackwell, Oxford. Chapter 2: Nature, Human and Inhuman: pp 37-70.

Assignment:
none

Week 5: The Nature of Nature (2 of 2)

Learning Objectives:

- critical appreciation for biased character of conceptions of nature typically employed in mainstream modern science
- beginning to develop an own vision of how this impacts scientific arguments

Reading to be completed for the **following** week (week 6):

- Toulmin, S. (1990). *Cosmopolis: the hidden agenda of modernity* New York, Free Press. pp ix-87.
- Dassow Walls, Laura (1999). *Material Faith Henry David Thoreau on Science* Mariner Books, New York. pp 1-17.

Assignment:

complete and submit Essay 1: assigned in week 3

Week 6: Science, Nature and the Industrial Revolution (1 of 3)

Learning Objectives:

- initial appreciation for the existence of connections between political economic history of Europe and Colonial America and the development of The Scientific Method.

Reading to be completed for the **following** week (week 7):

- Toulmin, S. (1990). *Cosmopolis: the hidden agenda of modernity* New York, Free Press. pp 89-137.
- Dassow Walls, Laura (1999). *Material Faith Henry David Thoreau on Science* Mariner Books, New York. pp vii-xviii; 18-115.

Week 7: Science, Nature and the Industrial Revolution (2 of 3)

Learning Objectives:

- understanding of the interplay between the development of the Modern Scientific Method, the Industrial Revolution and the intellectual, political economic and cultural context within which they arose.

Reading to be completed for the **following** week (week 8):

- Toulmin, S. (1990). *Cosmopolis: the hidden agenda of modernity* New York, Free Press. pp 139-209.
- Camus, A. (1951 [1971]). *The Rebel* Penguin Books. pp 19-75.

Assignment (to be submitted before the Lecture on week 10):

- Essay 2: a three to four page essay on one of the following two topics
- Tracing the life of a Technology, through Science and Politics
 - The story of Politics, Nature and Technology in a case study culture: e.g. Native American; African American; European; Colonial American; Chinese; Malagasi; Buddhist; New York City.

Week 8: Science, Nature and the Industrial Revolution (3 of 3)

Learning Objectives:

- critical perspective and ability to begin developing own interpretations of the relationship between the progression of political economy and scientific method in Europe and modern America

Reading to be completed for the **following** week (week 9):

Camus, A. (1951 [1971]). *The Rebel* Penguin Books. pp 76-155.

Merchant, Carolyn (1992). *Radical Ecology: the search for a livable world* Routledge, London. Chapter 2: Science and Worldviews: pp 41-60.

Assignment:

none

Week 9: Knowledge and power in science (1 of 2)

Learning Objectives:

- awareness that scientific truth and understanding are not value neutral, a-historical phenomena
- appreciation for the political economy narrative of interplay between conceptions of nature, science and power in the establishing of modern industrial societies and the technologies they employ

Reading to be completed for the **following** week (week 10):

Camus, A. (1951 [1971]). *The Rebel*, Penguin Books. 156-270.

Kuhn, Thomas S. (1970[1962]). *The Structure of Scientific Revolutions, 2nd ed.* University of Chicago Press, London: Post-script: Revolutions and Relativism.

Ravetz, Jerome R. (1990). *The Merger of Knowledge with Power: Essays in Critical Science* Mansell, London. Chapter 2: How we got here, What was the Scientific Revolution: pp 100-115.

Assignment:

none

Week 10: Knowledge and power in science (2 of 2)

Learning Objectives:

- appreciation for how interplay between politics, science and conceptions of nature appear and operate in sustainability science in particular and interdisciplinary environmental studies more generally

Reading to be completed for the **following** week (week 11):

none

Week 11: Break

Reading to be completed for the **following** week (week 12):

- Bjørn Lomborg, *The Economist* 'The truth about the environment' Aug., 2nd 2001
The Economist 'Defending science', Jan., 31st 2002
Tom Burke, Charles Secrett and Tony McMichael, *The Guardian* 'Arguments that don't hold water' Monday Aug., 20th 2001
Haas, P. M. (2004). 'When does power listen to truth? A constructivist approach to the policy process' *Journal of European Public Policy* 11(4): 569-592.

Week 12: Environmental Conflicts and Scientific Arguments (1 of 3)

Learning Objectives:

- basic knowledge of what topics are addressed in *The Skeptical Environmentalist* and of the controversy surrounding it
- appreciation for how this controversy typifies the problems of contested science in environmental politics
- appreciation for the basic difficulties that existing political theory has with trying to understand and resolve such controversies

Reading to be completed for the **following** week (week 13):

- Mike Hulme, *The Guardian* 'The appliance of science' Wednesday Mar., 14th 2007
O'Neill, J. (1997). Value Pluralism, Incommensurability and Institutions. Valuing Nature? In J. Foster *Ethics, economics and the environment* London, Routledge: 75-88.
Vatn, A. & D. W. Bromley (1994). 'Choices without prices without apologies' *Journal of Environmental Economics and Management* 26:129-148.

Assignments (to be submitted before the Lecture on week 15):

- Essay 3: a two page essay on the topic 'what I learned and why I care'

Week 13: Environmental Conflicts and Scientific Arguments (2 of 3)

Learning Objectives:

- appreciation for the problem of value conflicts
- appreciation for the problem of fact/value conflation in environmental politics and environmental studies situations that address questions concerning the future disposition of human / non-human nature relationships (socio-ecological systems).

Reading to be completed for the **following** week (week 14):

- Mayumi, Kozo and Giampietro, Mario (2005). 'The epistemological challenge of self-modifying systems: Governance and sustainability in the post-normal science era' *Ecological Economics* 57(3): 382-399.
Kasemir, B., J. Jäger, C.C. Jaeger (2003). 'Citizen Participation in Sustainability Assessments' In Kasemir, B., J. Jäger, C.C. Jaeger, M.T. Gardner, Eds. (2003). *Public Participation in Sustainability Science: A Handbook*. Cambridge, Cambridge University Press: 3-36.
Martinez-Alier, J., G. Munda, John O'Neill (1998). 'Weak comparability of values as a foundation for ecological economics' *Ecological Economics* 26:277-286.

Volger, J. and A. Jordan (2003). Governance and the environment. In *Negotiating Environmental Change: New Perspectives from Social Science*. F. Berkhout, M. Leach and I. Scoones (Ed) Cheltenham, Edward Elgar: 137-158.

Assignment:
none

Week 14: Environmental Conflicts and Scientific Arguments (3 of 3)

Learning Objectives:

- critical understanding of the interplay between methodological and political issues in interdisciplinary environmental science for policy
- beginnings of an own opinion on the political economic, social, methodological and/or philosophical implications of these conflicts

Reading to be completed for the **following** week (week 15):
none

Assignments (to be submitted before the Lecture on week 15):

Essay 3: a two page essay on the topic 'what I learned and why I care'

Week 15: Wrap Up

Learning Objectives:

- drawing together the big picture: how and why can Politics, Science and Nature be understood as a single complex
- what has been learned during the course and what does it mean to the students attending this class

Sample Course 2 of 2

Multi-Dimensional Humanity: a critical investigation of the relationships between politics, nature, humanity and technology in the 21st Century

This seminar course is based on an up-to-date, active and creative, exploration of Herbert Marcuse's classic text *One-dimensional Man*, written in 1964.

Although Marcuse's 1964 text was, in principle, an academic work, it was taken up widely by peace and environmental activists in the 1960s, as a liberation philosophy. Marcuse's systematic critique of one-dimensional thinking and his description of technology as ideology struck a cord with individuals who felt disempowered or oppressed by the technological optimism of the 1950s but lacked a coherent explanation for how and why they were frustrated. This work influenced an entire generation of environmental activists and science and technologies studies scholars: often implicitly, occasionally explicitly.

The basic aim of this course is to introduce students to the interplay between science, technology, industrialisation, modernity and environmental politics. It is divided into three phases, with speed of progress through the readings to be adjusted as the course proceeds.

Suitable for advanced undergraduate and for graduate students

Class size: 15-30
Lecture Period: 30 weeks
Assignments: three essays

Phase 1: Setting the Scene (8 weeks)

In order to give them sufficient background to develop their own critical position, with regard to *One-dimensional Man*, students will spend the first phase of the course conducting a close reading of two texts that set out the big picture environmental politics issues at play.

Hajer, Maarten, A. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Clarendon Press, 1995.

Ravetz, Jerome R. *Scientific Knowledge and Its Social Problems*. Oxford: Clarendon Press, 1971.

The two books will be read in succession, with specific reading assignments for each week. Students will be expected to discuss their understanding and opinions on the texts within the seminar setting and to produce a 5-10 page essay that identifies points of overlap between the two texts.

The Essay Topic for this phase is:

The Politics of the Science of Environmental Discourse

Phase 2: One-dimensional Man (17 weeks)

In this phase the group will conduct a close and critical reading of the Marcuse text *One-dimensional Man* on a chapter by chapter, and if required, on a page by page basis. This is a heavy philosophical work, drawing on a huge amount of background knowledge and using challenging language. Additional text will be introduced into the course depending upon the directions in which the reading and discussions proceed.

This approach is intended to give students the opportunity to learn how to engage critically with a text while also furnishing them with important historical and analytical material concerning relationships between science, technology and environmental politics. Students will be encouraged not only to understand but also to critique Marcuse, through reference to the two texts read during phase one of the course and drawing on other materials they encounter in their lives and studies.

Review of chapters will be prepared by students, for presentation to the group.

The Essay Topic for this phase is:

One-dimensional Man / Multi-dimensional Humanity: a new look at an old story

Phase 3: Synthesis and Creation (5 weeks)

In this final phase of the course, students will be asked to reflect upon how their reading of Marcuse's *One-dimensional Man* has changed their thinking about science, technology and

society and to draw together their learning into coherent positions and arguments on topics raised in the text.

In the first of these five weeks, the class will discuss and decide, together, on three core topics that will then constitute the basis for discussions to take place in weeks 2-4. In the final week, the group will review lessons learned and assess their course experience.

The Essay Topic for this phase is:

Living with Technology in the 21st Century

The Essay may be focused on the Marcuse text, one of the texts read at the beginning of the course, or on related work within another course: in any case, all three of the texts presented in this course need to be discussed.

Suggested Additional Reading:

Carson, Rachel (1963). *Silent Spring* Hamish Hamilton, London.

Descartes, René (1999[1641]). *Discourse on method and related writings*, translated with an introduction by Desmond M. Clarke, Penguin Books, London.

European Commission (2002). Science and Society Action Plan, Office for Official Publications of the European Communities, Luxembourg.

Funtowicz, S.O. and J.R. Ravetz (1990). *Uncertainty and Quality in Science for Policy* Kluwer Academic Publishers, the Netherlands.

Gould, Stephen Jay (2003). *The Hedgehog, the Fox and the Magister's Pox* Jonathan Cape, London.

Horkheimer, Max and Theodor W Adorno (1972 [1944]). *Dialectic of Enlightenment* Herder & Herder, New York.

Koestler, Arthur and J.R. Smythies Eds. (1969). *Beyond Reductionism: New perspectives in the life sciences (The Alpbach Symposium of 1968)* Hutchinson & Co. Ltd., London.

Latour, B. and S. Woolgar (1979). *Laboratory life: the social construction of scientific facts* Sage Publications, London

Lee, Kai N. (1993). *Compass and Gyroscope: Integrating Science and Politics for the Environment* Island Press, Washington, D.C.

Lovelock, James (2000[1979]). *Gaia: A new look at life on Earth (Reissued with a new preface and corrections)* Oxford University Press, Oxford.

Toulmin, Stephen (1990). *Cosmopolis: the hidden agenda of modernity* Free Press, New York.