SOC 254

Science, Society and Environment

S2 Day 2017

Dept of Sociology

Contents

General Information	2
Learning Outcomes	2
Assessment Tasks	3
Delivery and Resources	5
Unit Schedule	7
Learning and Teaching Activities	8
Policies and Procedures	8
Graduate Capabilities	10

Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff
Marc Torka
marc.torka@mq.edu.au

Credit points
3

Prerequisites
12cp at 100 level or above

Corequisites

Co-badged status

Unit description
This unit examines the relationship between science and society through environmental sustainability. We focus on two big questions: how can we understand science and scientific developments as social processes and institutions; and how can we understand the implications of scientific advance and insights on society in light of environmental issues? We examine how science developed through Modernity, how scientific knowledge is formed and how it's used in the policy process. We look at the continuum of values from conventional instrumental to deep ecological values and investigate their uses in environmental policy. The first question is addressed through an analysis of what we mean by scientific knowledge, how this might differ from other knowledge systems and how science is actually practiced and new insights developed. The second question we address through debates on climate change and sustainability. We ask how and why scientists have raised questions about environmental sustainability. What is the basis of these claims and of criticisms of science? How have scientists engaged in broader social and political debates to advance their environmental insights? How have scientists influenced our societies to become more sustainable, and why have they not been more successful?

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

* explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate

historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment Tasks

Name	Weighting	Hurdle	Due
Participation	15%	No	ongoing
Book review	25%	No	Week 6
Weekly Quiz	20%	No	ongoing
Exam	40%	No	end of semester

Participation

Due: **ongoing**
Weighting: **15%**

5% attendance of tutorials, 5% attendance at lectures, 5% participation in tutorials

(online participation for external students for all three)

On successful completion you will be able to:

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge

systems in re-thinking western notions of sustainability.

Book review

Due: **Week 6**
Weighting: **25%**

Summary of a book on the environment, chosen from the supplementary list or in consultation with your tutor (600 words); due Fri, Week 6.

Topic: Select one book on the environment from the supplementary list and do the following:

1. Identify and describe the book's topic
2. Summarise its contents, enlisting the most important ideas and discussion points in a logical, coherent, structured way

Assessment criteria:

- Correct identification of topic and main points in your book
- Comprehension of the book's content and the overall quality of your writing

On successful completion you will be able to:

- * explore and explain the relationships between society, science and technology * situate 'science' in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Weekly Quiz

Due: **ongoing**
Weighting: **20%**

Weekly online quizzes will appear on iLearn from Week 2 to Week 11. These will incorporate weekly lecture topics and material from the weekly reading. Each quiz will be worth 2 points, adding up to 20% of your overall mark over 10 weeks. These will have to be completed within a

set time period following the lectures.

On successful completion you will be able to:

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Exam

Due: **end of semester**
Weighting: **40%**

Exam (40%) A series of short essays and multiple-choice questions. Date of the exam will be posted through the semester.

On successful completion you will be able to:

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Delivery and Resources

READINGS	
Week 1	1. Hannigan, J A (1995) 'Social Construction of Environmental Problems', in Hannigan, J A (1995) Environmental Sociology – A Social Constructionist Perspective, Routledge, New York: 38-57. COMPULSORY 2. Martell, L (1994) 'Ecology and Industrialism', in Martell, L (1994) Ecology and Society – An Introduction, Polity Press, Cambridge: 24-33. COMPULSORY
Week 2	Pepper, David (1996) 'Defining Environmentalism', in Pepper, David (1996) Modern Environmentalism – An Introduction, Routledge, London: 10-16. COMPULSORY
Week 3	1. Williams, M (2000) 'Where did science come from', in Science and Social Science: An Introduction, London: Routledge: 8-27. COMPULSORY 2. Pepper, David (1996) 'Pre-Modern and Modern Ideas about Nature and Science – the roots of technocentrism', in Pepper, David (1996) Modern Environmentalism – An Introduction, Routledge, London: 124-163. SUPPLEMENTARY
Week 4	Dovers, Stephen (2005) 'Thinking about Policy', in Dovers, Stephen (2005) Environment and Sustainability Policy: Creation, Implementation, Evaluation, The Federation Press, Sydney: 18-37. COMPULSORY
Week 5	Berkes, Fikret (1999) 'Context of Traditional Ecological Knowledge' and 'Toward a unit of mind and nature', in Berkes, F (1999) Sacred Ecology: Traditional Ecological Knowledge and Resource Management, Taylor & Francis, London: 3-14 and 163- 183. COMPULSORY
Week 6	1. Bulkeley, Harriet (2001) 'Governing Climate Change: The Politics of Risk Society?', in Transactions of the Institute of British Geographers, Vol 26, No 4: 430-447. COMPULSORY 2. Gidley, Jennifer et al (2009) 'Participatory Futures Methods: Towards Adaptability and Resilience in Climate-Vulnerable Communities', in Environmental Policy and Governance, No 19: 427-440. SUPPLEMENTARY 3. Grundmann, Reiner (2007) 'Climate change and knowledge politics', in Environmental Politics, Vol 16, No 3: 414-432. SUPPLEMENTARY 4. Haas, Peter M (2005) 'Science and international environmental governance', in Dauvergne, Peter (ed) Handbook of Global Environmental Politics, Edward Elgar Publishing, Cheltenham, UK: 383-401. SUPPLEMENTARY 5. Beder, Sharon (2009) 'Industry Conjurers', in Overland, Vol 195, Winter 2009: 54-58. ADDITIONAL

Week 7	1. Chapin, S F et al (2000) 'Consequences of changing biodiversity', Nature, Vol 405, 11 May 2000: 234-242. COMPULSORY 2. Connelly and Smith (1999) 'Introduction', in Politics and the Environment – From Theory to Practice, Routledge, London: 2-9. SUPPLEMENTARY
Week 8	1. Carson, Lyn et al (2002) 'Community Consultation in Environmental Policy Making', in The Drawing Board: An Australian Review of Public Affairs, Vol 3, No 1, July 2002: 1-13. COMPULSORY 2. Muir, Cameron (2010) 'Feeding the world – our great myth', in Griffith Review, No 27, Autumn 2010: 59-73. ADDITIONAL 3. Ritter, David (2010) 'Fishing like there's no tomorrow – behind our seafood feast', in Griffith Review, No 27, Autumn 2010: 122-130. ADDITIONAL
Week 9	Irwin, Alan (2001) 'Sustainability as Social Challenge', in Sociology and the environment, Polity, Oxford: 31-49. COMPULSORY
Week 10	1. Dovers, Steve (2008) 'Urban water: policy, institutions and governance', in Troy, P (ed) Troubled waters: confronting the water crisis in Australia's cities, ANU E-Press, Canberra: 81-98. COMPULSORY 2. Miller, Chris (2011) 'Struggling in the face of complexity – water reform in the Murray-Darling Basin', in Griffith Review, No 32, Autumn 2011: 213-224. ADDITIONAL
Week 11	1. Lowe, Ian (2005) 'Radically rethinking a sustainable future', in Griffith Review, Edition 2, Dreams of Land, 2005: 1-5. COMPULSORY 2. Williams, Robyn (2011) 'Science without a capital S', in Griffith Review, No 31, Autumn 2011: 102-110. ADDITIONAL
Week 12	Murray, Paul (2011) 'Awareness: Personalizing Sustainability', in The Sustainable Self – a personal approach to sustainability education, EartScan, London: 27-63. COMPULSORY
Week 13	No set reading… please review previous readings.

Unit Schedule

LECTURES

Week 1	Introduction + Main environmental concepts	Marc Torka
Week 2	Frameworks: understanding science and the environment	Marc Torka
Week 3	Science in society	Marc Torka
Week 4	Science as industry	Marc Torka
Week 5	The environmental crisis, its origins and components	Marc Torka
Week 6	Climate change	Marc Torka
Week 7	Biodiversity	Marc Torka
Week 8	Environmental policy and values	Marc Torka
Week 9	Environment and health	Marc Torka
Week 10	Water	Marc Torka
Week 11	Science and the future & recap on course themes	Marc Torka
Week 12	Environmental activism and sustainability	Marc Torka
Week 13	No lecture No tutorial this week	-

Learning and Teaching Activities

Quizzes

Weekly online quizzes will appear on iLearn from Week 2 to Week 11. These will incorporate weekly lecture topics and material from the weekly reading. Each quiz will be worth 2 points, adding up to 20% of your overall mark over 10 weeks. These will have to be completed within a set time period following the lectures.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment task

- Participation

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and

ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Participation
- Book review
- Exam

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Book review
- Exam

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Book review
- Weekly Quiz
- Exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate

historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Book review
- Weekly Quiz
- Exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Weekly Quiz

- Exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Participation
- Exam

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate

historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment task

- Participation

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcome

- * explore and explain the relationships between society, science and technology * situate ‘science’ in relation to the social production of environmental knowledge * appreciate historically changing conceptions of science and their implications for environmental understandings and sustainability * identify social, scientific, economic, political and ecological interdependencies * understand the way scientific knowledge is produced and its place in public policy contestation * appreciate complexity and uncertainty in environmental sustainability decisions * understand the place of values in the production of knowledge and the way the environment is conceived * appreciate the variety of formal and informal inputs into environmental decision making processes in relation to the case of climate change policy * appreciate the value of indigenous knowledge systems in re-thinking western notions of sustainability.

Assessment tasks

- Book review
- Weekly Quiz
- Exam