



GGEOP300

Environmental Decision Making

S1 Day 2018

Department of Geography and Planning

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General Information

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Credit points

3

Prerequisites

(39cp at 100 level or above) including (ENV267 or GEOS265 or GEOS267)

Corequisites

Co-badged status

Unit description

This unit examines the professional practice of environmental decision makers in environmental planning and environmental management, looking at the technical, political and managerial aspects of effective decision making. Environmental decisions are explored through cases, to bring the complexity of professional practice into focus, and workshop sessions ask students to explore what they would do in guest speakers' shoes.

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:

Develop skills in identifying relevant findings and other information relevant to environmental decision making cases.

Develop skills in analysis, synthesis and critical thinking to support environmental decision making.

Develop skills in applying creative and innovative thinking to environmental problem solving.

Develop the ability to write cogent and clearly structured reports that analyse environmental issues and options for decision makers.

Develop the capacity for independent learning and inquiry.

Develop their sense of social, ethical and professional responsibility.

General Assessment Information

Assessment Standards

Many specific aspects of your work are important (as identified in the following standards), but it is the overall quality of the completed work that is important. Assignments will be assessed holistically. The following bands are 'ideal types': lists of the features of typical examples of assignments at each level.

The standard of each assignment is obviously important - good grades demonstrate that your work is competent, proficient or excellent. But from a learning perspective, it is equally important to look at your own work developmentally: to look for gradual improvement, deepening insight, and broadening competency. Grades for assignments assess the standard of your work. Comments on assignments are intended to be helpful developmentally: indicating what you have achieved, and how you could improve your work.

For a grade of High Distinction ($\geq 85\%$)

- use and synthesis of a variety of high quality sources not mentioned in class or on reading lists;
- considered use of dictionary and technical terms, diagrams and/or other sources to define and set the topic in context;
- incisive and decisive specification of the key issues;
- prioritisation and exposition of the key issues in a clear and logical sequence;

- relevant contrary arguments are identified and effectively dealt with;
- discussion forms a sound basis for clear, justified and comprehensive recommendations and conclusions;
- independence of thought and obvious originality;
- demonstrated ability to weigh arguments and form clear, considered personal viewpoints;
- proficient use of the English language;
- references presented at 'publishable' standard.

Overall, your work demonstrates, in an interesting or challenging way, originality based on proficiency in all the learning objectives.

For a grade of Distinction (75-84%)

- use and synthesis of some high quality sources not mentioned in class or on reading lists, and reference to some others;
- adequate use of dictionary and technical terms, diagrams and/or other sources to define and set the topic in context;
- clear specification of the key issues;
- key issues generally presented in a logical sequence;
- relevant contrary arguments raised but might not be fully resolved;
- discussion leads to clear and justified recommendations and conclusions;
- independence of thought and significant originality;
- general ability to weigh arguments and form personal viewpoints;
- clear use of the English language;
- references largely error free.

Overall, your work demonstrates a comprehensive awareness and understanding of the topic of the assignment.

For a grade of Credit (65-74%)

- use and synthesis of some high quality sources, and reference to some additional good quality material;
- use of dictionary and technical terms to define and contextualise the topic;
- overall awareness of the key issues;
- the selected key issues generally presented in a logical sequence;
- some contrary arguments raised with inadequate appreciation of their significance;
- a clear statement of conclusions and recommendations;
- some independent thought but limited originality;

- difficulties in weighing arguments and presenting personal viewpoints;
- sometimes proficient and always passable use of the English language;
- some errors of omission or detail in presentation of references.

Overall, your work demonstrates the ability to use and apply fundamental concepts and skills.

For a grade of Pass (50-64%)

- limited use and synthesis of good quality sources;
- use of dictionary or vernacular definitions in an attempt to identify and set the topic in context;
- some awareness of the key issues;
- some attempt to order the argument, but flaws in logical discipline;
- few contrary arguments raised and little appreciation of their significance or resolution;
- a generally clear statement of conclusions and recommendations;
- little independent thought and minimal originality;
- little weighing of argument and lack of clarity in personal viewpoints;
- passable use of the English language;
- some errors of omission or detail in presentation of references.

Overall, your work satisfies the basic learning requirements of the assignment.

For a grade of Fail (45-49%)

- at the lower end of the acceptable range for most criteria for a grade of Pass.

For a lower grade of Fail (26-44%)

- lack of awareness of sources or what the question is about;
- confused definitions;
- general inability to identify the key issues;
- inability to order the argument;
- few, if any, contrary arguments raised and no appreciation of their significance or resolution;
- inadequate statement of conclusions or recommendations;
- no independent thought or originality;
- no ability to weigh arguments or form personal viewpoints.

For a grade of Serious Fail (< 26%)

- no reference to suggested sources, generally inappropriate use of materials
- no attempt at definitions;
- no awareness of key issues, such that the paper fails to address or answer the question;

- arguments unformulated, many errors, unsupported assertions, unjustified generalisations;
- contrary arguments impugned or ignored;
- inconclusive outcome to the paper;
- no independent thought, any originality likely to be illogical;
- inability to weigh arguments, personal viewpoints absent or inadequate.

Source: Neil DT, Wadley DA, and Phinn SR 1999, 'A generic framework for criterion-referenced assessment of undergraduate essays', *Journal of Geography in Higher Education*, 23(3) pp. 303-325. See also: Neil DT, Wadley DA, and Phinn SR 1998, *Assessment Guidelines*, School of Geography, Planning and Environmental Management, The University of Queensland. Online: <http://www.gpem.uq.edu.au/assess-guidelines> Used with permission. This text is a very minor adaptation of an excerpt from Neil, Wadley and Phinn (1998). See the full text in either version for further very useful background on these standards, and the criteria they reflect.

Word Counts

References are not included in the word counts set for each assignment.

A tolerance of plus or minus 10% is allowed for, on the set lengths. So for example, a 1,000 word essay could be anywhere from 900 to 1,100 words long. If you submit assignments that are shorter or longer than this, you may be penalised for length.

Raw marks and final marks

The marks assigned during Session and reported on iLearn, when assignments are being marked, are raw marks - they may be adjusted up or down, depending on moderation (checking of the marking). (These are sometimes necessary to correct for differences between markers, for example. Changes, when they occur, are usually modest. They usually occur when marks are being finalised at the end of the session.)

Submission of Assignments

Assignments 1, 2 and 3 are to be submitted electronically via iLearn by midnight on the due date.

Assignments 1, 2, and 3 will be reviewed by Turnitin, which helps us check whether sources are properly acknowledged, and whether assignments submitted are each student's own work.

Acknowledging your debts to other people's work - your use of their exact words or their ideas - is fundamental to good scholarship. We recommend reviewing Georgetown University's very helpful guide to honest, transparent acknowledgment of your sources: <http://honorcouncil.georgetown.edu/whatisplagiarism>.

Late submissions

To request an extension, make the request for Special Consideration through ask.mq.edu.au, providing a clear explanation and providing supporting documentation where needed (e.g. a Macquarie Professional Authority form).

Unless a Special Consideration request has been submitted and approved, (a) a penalty for lateness will apply – two (2) marks out of 100 will be deducted per day for assignments submitted after the due date – **and (b) no assignment will be accepted more than seven (7) days (incl. weekends) after the original submission deadline.**

Please plan your work for your units at the start of the Session, and keep track of how much time you have available for each assignment. **Please get help if you are having trouble completing work on time.** Visit a doctor, a Campus Wellbeing service (<https://students.mq.edu.au/support/wellbeing>), talk to your tutor or the Unit Convenor for academic help, or whatever else is appropriate.

Assessment Tasks

Name	Weighting	Hurdle	Due
Short Literature Report	10%	No	Midnight Sunday 18th March
Case Study 1	25%	No	Midnight Sunday 15th April
Case Study 2	40%	No	Midnight Sunday 13th May
Class Participation	25%	No	Lectorials, Tutorials 2-11

Short Literature Report

Due: **Midnight Sunday 18th March**

Weighting: **10%**

Report on lessons from the literature - 500 words

Choose one of the following five texts (each of which is in the tutorial reading list), read it critically, and on the basis of that reading, write a report of 500 words on what you have concluded are the important implications for professional environmental decision makers.

Biggs, R., F. R. Westley, and S. R. Carpenter. 2010. Navigating the back loop: fostering social innovation and transformation in ecosystem management. *Ecology and Society* 15(2): 9. [online] URL: <http://www.ecologyandsociety.org/vol15/iss2/art9/>

Cundall G, Cumming GS, Biggs D and Fabricius C 2011. Soft Systems Thinking and Social Learning for Adaptive Management. *Conservation Biology* 26(1):13–20.

Forester J. 2006. Making Participation Work When Interests Conflict: Moving from Facilitating Dialogue and Moderating Debate to Mediating Negotiations. *Journal of the American Planning Association*, 72(4):447-456.

Meadows, D. 1999. Leverage points: places to intervene in a system. The Sustainability Institute, Hartland, USA. <http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>

Walkerden, G. 2009. Water Sensitive Design and Development Strategy - Process Report. Great Lakes Council, Forster. Available on iLearn. [This is a consultancy report that describes a professional decision making process in more detail than is usual in the peer reviewed literature.]

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Case Study 1

Due: **Midnight Sunday 15th April**

Weighting: **25%**

Casey Study 1 - 1,250 essay

Your task is to write a 1,250 word essay that analyses a major environmental decision made by influential stakeholder(s) and discusses its strengths and weaknesses from the perspectives of (i) socio-ecological dynamics and (ii) effects on stakeholders (both human and non-human).

To do this, (i) consider the decision from a systems perspective: how has it and will it affect the socio-ecological systems it is occurring within?; and (ii) consider who wins, who loses, in what ways, by what uses of power?

Choose a substantial, interesting environmental planning or environmental management decision. Some examples of substantial environmental decisions are:

- a major development proposal, e.g. a uranium mining proposal, or a desalination plant proposal
- a major land use plan, e.g. a Local Environmental Plan, a biodiversity conservation strategy, a metropolitan strategy, a coastline management plan
- a major natural resource management plan, e.g. a strategic plan for the Murray Darling

Basin, a strategic plan for the Great Barrier Reef, a fisheries management plan

- a risk management strategy for a major issue, e.g. management of risk of fire in rural Victoria;
- development of policy for a sector, e.g. a metropolitan transport strategy, or a renewable energy strategy; or
- development of a policy position for an international negotiation, e.g. development of an Australian position on climate change to take to the negotiations of the UNFCCC Conference of the Parties (COP).

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Case Study 2

Due: **Midnight Sunday 13th May**

Weighting: **40%**

Case Study 2 is a combination of (i) a small group project (Task 2, a poster about an environmental decision), and (ii) an individual project (Task 1, a report that contributes to the group's understanding of the environmental decision).

You will be allocated into groups of 4-5 people in your tutorial. Each group will select a recent or forthcoming environmental decision that will be the focus of the group's poster, and its members' individual assignments. Groups should discuss what aspects and/or parts of the decision they wish to research for the poster, and each group member should focus their Task 1 work on one or more of these topics, in a way that supports the group's efforts.

Task 1 - Research aspect(s) and/or part(s) of the decision, and write a research report that is the basis of your contribution to the poster in the form of an 1,250 word research essay - 30%

Start with the Macquarie University Library website (<http://www.mq.edu.au/about/campus-services-and-facilities/library>) and search Google Scholar and/or article databases available (the second tab), looking for academic research that relates to your topic. Supplement this with standard Google searches (or the search engine of your choice), looking for other high quality sources of information about your topic.

Analyse the information available, developing a view about your topic that will inform your group's assessment of the case. Demonstrate (i) use and synthesis of many high quality sources not mentioned in class or on reading lists; (ii) astute use of technical terms and sources to define the topic and set it in context, and incisive specification of the key issues; (iii) that you can lay key issues out in a clear, logical sequence, identify and address relevant contrary arguments, and draw clear, justified and comprehensive conclusions; and (iv) that have the ability to form a clear, considered personal viewpoint, that provides evidence of independence of thought and originality.

To provide a clear, focused argument describe (i) the importance of the topic you are investigating for an evaluation the decision, (ii) your conclusions re your topic, and (iii) your reasons for reaching these conclusions.

For decisions, the key academic literature is relevant to, but not specifically about, the case you are studying. To find this literature, consider: what research has been done on kinds of place like those that come up in your case study? what research has been done on the issues that come up in your case study? what research provides helpful background for considering decisions of this kind (e.g. re decision making methods, key concepts, ethical stances)?

Task 2 – Contribute to Case Study Decision Analysis Group Poster - presentations in tutorials in weeks 12 and 13 - 10%

In groups of 4 - 5 people, prepare an academic poster (following the guidelines provided on iLearn) that provides a coherent analysis of a major environmental decision-making situation. Your analysis should clearly consider (i) the decision in the light of the socio-ecological systems it is occurring within, (ii) its socio-political character, and (iii) management and governance perspectives on the decision. Develop clear conclusions about the major issues, and make recommendations where appropriate. Make sure your analysis is linked to, and grounded in, the relevant academic literature.

You may be innovative in your presentation, so long as the final product conforms to the guidelines and can be displayed on a wall or display board. It is up to each team to determine how tasks are divided or shared, and all contributors to the poster should be clearly listed below the title as joint authors.

You should ensure that communication is the key principle used in designing and developing your poster. You should use maps, tables and other illustrative material to effectively describe the scenario under consideration and to summarize key information. The text of your poster should be legible and all sources should be accurately cited and referenced. The final format of the poster is a decision for the team.

Posters will be marked on a pass / fail basis. If the group Fails its poster, then each member of the group will get zero (0/10) for this component of Case Study 2. *If the group's poster Passes, then each student will get a mark out of 10 that mirrors their mark for Task 1.* For example, if a student received 20/30 for Task 1, the research essay, then they would get two thirds of the available marks for Task 2, the poster, i.e. 6.7/10. It is important to pass the Poster component of Case Study 2. If the group's poster gets a passing grade, then each student's total mark for the case study will be determined by the quality of their work on the research essay.

To assist each group to keep focused on contributing fairly to the poster, *when the poster is given to your tutor, please also provide them with a one page table that lists the following:*

- each student's MQ ID
- each student's name

and then their approximate percentage contributions to each of the following:

- project planning and management
- written communication (writing text)
- visual communication (layout, images, fonts & spacing)
- class presentation (presenting, answering questions).

This sheet should be signed by each member of the group and handed to your tutor. By all means use people's strengths - its fine for people to do more of one task and less of another - but together look for ways to be fair to each other, while producing a good result.

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Class Participation

Due: **Lectorials, Tutorials 2-11**

Weighting: **25%**

In GEOP300, 25% of your overall grade for the unit is assigned to your class participation - 5% for lectorial attendance, and 20% for tutorial participation.

Task 1 – Attend all lectorials

In GEOP300, the lecture content and class exercises are interspersed. You can't get the benefit of the learning by listening on iLearn - that's passive rather than active - so attendance is required. **Attendance will be recorded for all lectures. Occasional worksheets will be used in class, and some of these will be collected, and will need to show evidence that you have engaged with the task, to earn the participation credits for that session.**

5 marks can be earned simply by attending and participating. 5 marks: attending & participating 11-13 weeks. 4 marks: 9-10 weeks. 3 marks: 7-8 weeks. 2.5 marks: 6 weeks. 0 marks: attending & participating less than 6 weeks.

(If you have special circumstances that you think warrant an exemption from this lecture attendance requirement, contact the unit convener. If, during session, you are ill or are facing other difficulties, advise that through ask.mq.edu.au.)

Task 2 – Read the two assigned readings, and present one of them if requested

There are no tutorials in week 1. Participation in tutorials in weeks 2 to 11 will be assessed. (Weeks 12 and 13 are devoted to presentation and discussion of posters.)

For each week's tutorial, in weeks 2 to 11, read the two assigned readings, and be prepared to present each of them to the class. In each week's tutorial, two people will be selected randomly to present a brief (5 minute) summary of one of the assigned readings and to jointly facilitate a class discussion. You can't use Microsoft Powerpoint or any other electronic presentation tools but you will be allowed to use the whiteboard if you wish. Your performance will be assessed using a simple marking sheet that indicates the strength of your contributions. Further details on marking criteria will be provided in class.

This arrangement - being asked based on a random number generator to introduce a reading, and then the whole tutorial's participation being assessed - may seem tough. It arose from earlier experience of few tutorial members being prepared to discuss the readings. Following this change, students have reported getting much more out of tutorials, and finding them more enjoyable. It ensures you will have carefully considered a number of noteworthy papers re environmental decision making.

On successful completion you will be able to:

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Delivery and Resources

EXPECTATIONS

Teaching and Learning Strategy

The teaching process has four main elements:

1. Lectures that introduce basic concepts. In GEOP300 the lectures are all lectorials: they

intermingle lecture content, discussion, and workshop exercises. This is why attendance is compulsory: you need to be in the room to participate to learn by participating.

2. Talks from guest lecturers that convey the complexities of environmental and sustainability decision-making, in practice, in diverse settings. These workshops used an approach inspired by the Harvard Business School's case study method: the guests introduce a decision situation, then we discuss what you would do in their shoes, then they tell us what they actually did, and we all discuss that.
3. Tutorials in which students explore the research literature around environmental decision making.
4. Assignments that require students to understand key skills, including systems thinking, stakeholder analysis, management system analysis, and integrative thinking.

Lectures, tutorials and assignments introduce students to:

- identifying social, economic and ecological interdependencies
- identifying political, institutional and managerial issues
- identifying scientific, legal, engineering, planning, and other technical information relevant to decisions
- appreciating complexity and uncertainty in environmental and sustainable development decisions
- appreciating the variety of formal and informal decision making processes that shape sustainability outcomes at local, regional, national and international levels, and
- appreciating the wide range of tools and methods that can support environmental decision-making, through a mixture of theory and case studies.

Students are expected to:

- read set readings in advance for tutorials;
- participate in tutorial discussions; and
- follow current developments with regard to environmental decision-making, environmental policy and sustainable development in the media.

Technologies used and required

GEOP300 uses a wide variety of online resources, including an iLearn page to make slides and audio from lectures available, the Macquarie University Library for access to peer reviewed journal articles, and the web generally for news about, and discussions of, environmental decision making.

Workload expectation

It is generally expected that students will commit 3 hours per week per credit point in their studies. Thus, in addition to attending weekly lectures and tutorials for three hours, students in

GEOP300 are expected to complete appropriate reading, research and other activities equivalent to at least 6 hours per week. Thus the total workload for this unit should be considered as a minimum of 9 hours per week throughout the semester. If you are unable to make this commitment to your study, then you should reconsider your decision to enrol – or reassess your priorities. For virtually each student in the class, this unit is a core element of your final year studies and you should be aiming to secure as high a grade as possible. If you consider that you may have difficulty making this commitment, please discuss your situation with the Unit Convenor.

Requirements to complete the unit satisfactorily

- attend at least 80% of scheduled tutorials and lectures
- participate in class discussions, workshops and activities
- complete all assessment tasks

Writing Guide

All written work should follow the conventions laid out in the GSE Writing Guide, available on iLearn. This covers details of how to reference different kinds of source, amongst other things.

READING

Unit Web Page

The unit is available at : ilearn.mq.edu.au

Required readings

Week 1 - **NO TUTORIALS IN WEEK 1**

Week 2 - **Systems thinking**

Steffen W and others 2015. Planetary boundaries: Guiding human development on a changing planet. *Science* 347, 1259855. Full article: <http://dx.doi.org/10.1126/science.1259855> (11 pages).

Turner, G. 2008. A comparison of The Limits to Growth with 30 years of reality. *Global Environmental Change* 18:397–411.

Week 3 - **Systems thinking**

Meadows, D. 1999. *Leverage points: places to intervene in a system*. The Sustainability Institute, Hartland, USA. <http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>

Walters C (n.d.) *The Resilience of Systems*, included in workshop materials at a 1988 AEAM workshop at Macquarie University, available on iLearn.

Week 4 - **Stakeholders, knowledges, power & negotiation**

Forester J. 2006. Making Participation Work When Interests Conflict: Moving from Facilitating Dialogue and Moderating Debate to Mediating Negotiations. *Journal of the American Planning Association*, 72(4):447-456.

Richardson T 2005. Environmental assessment and planning theory: four short stories about power, multiple rationality, and ethics. *Environmental Impact Assessment Review* 25:341–365.

Week 5 - Stakeholders, knowledges, power & negotiation

Sarewitz, D. 2004. "How science makes environmental controversies worse." *Environmental Science & Policy* 7: 385-403.

Cundall G, Cumming GS, Biggs D and Fabricius C 2011. Soft Systems Thinking and Social Learning for Adaptive Management. *Conservation Biology* 26(1):13–20.

Week 6 - Environmental governance and management

Bulkeley, H. 2005. "Reconfiguring environmental governance: Towards a politics of scales and networks." *Political Geography* 24(8): 875-902.

Wilson, R. M. (2002). Directing the flow: migratory waterfowl, scale, and mobility in western North America. *Environmental History*, 247-266.

Week 7 - Environmental governance and management

Kapoor, I. 2001. "Towards participatory environmental management?" *Journal of Environmental Management* 63: 268-279.

Natcher, D. C., S. Davis, and C.G. Hickey 2005. Co-Management: Managing Relationships, Not Resources. *Human Organization* 64(3): 240-250.

Week 8 - Integration in decision making

Excerpts from Aldo Leopold 1949 *A Sand County Almanac*, available on iLearn.

Walkerden G 2005. Felt knowing: a foundation for Local Government practice. In: Keen M., Brown V. and Dyball R. 2005, *Social Learning in Environmental Management*, pages 170-187. Earthscan, London. Available on iLearn.

Week 9 - Integration in decision making

Head, BW 2014. Evidence, uncertainty, and wicked problems in climate change decision making in Australia. *Environment and Planning C: Government and Policy* 32:663-679.

Walkerden, G. 2009. Water Sensitive Design and Development Strategy - Process Report. Great Lakes Council, Forster. Available on iLearn.

Week 10 - Professional practice

Brunner, RD and Clark TW 1997. A practice-based approach to ecosystem management. *Conservation Biology* 11(1):48-58.

Oreskes N 2004. 'Science and public policy: what's proof got to do with it?'. *Environmental Science & Policy* 7(5):369–383.

Week 11 - Towards transformation

Biggs, R., F. R. Westley, and S. R. Carpenter. 2010. Navigating the back loop: fostering social innovation and transformation in ecosystem management. *Ecology and Society* 15(2): 9. [online] URL: <http://www.ecologyandsociety.org/vol15/iss2/art9/>

Brunner RD 2010. Adaptive governance as a reform strategy. *Policy Sciences* (2010) 43:301–341

Week 12 - Assignment 4 – poster presentation (I)

Week 13 - Assignment 4 – poster presentation (II)

Additional journal articles

In addition to the required reading for GEOP300, you should also be developing your program of professional reading – identifying journals that you regularly browse and may subscribe to as a professional; making a list of key authors and institutions whose work you look out for; and building up a set of key words that you regularly use for searching websites and journal databases.

Google Scholar (http://scholar.google.com.au/advanced_scholar_search) is an excellent startingpoint for finding interesting journal articles. The University Library (<https://www.mq.edu.au/about/campus-services-and-facilities/library>) lets students download PDFs of a very large number of peer reviewed journal articles, and includes an excellent keyword and phrase search facility (MultiSearch).

Some recommended journals

- | | |
|--|---|
| <ul style="list-style-type: none">• Action Research• Administrative Science Quarterly• Alternatives• Ambio• Australasian Journal of Environmental Management• Australian Geographer• Climatic Change• Coastal Management• Conservation Biology• Ecological Economics• Ecology and Society• Environment• Environment and Planning Law Journal• Environment, development & sustainability• Environmental and Planning Law Journal• Environmental Conservation• Environmental Ethics• Environmental History• Environmental Impact Assessment Review• Environmental Law Reporter (NSW)• Environmental Management• Environmental Politics• Environmental science & policy | <ul style="list-style-type: none">• Environmental Values• Ethics, Place and Environment• Forest Ecology and Management• Global Environmental Change• Habitat• Industrial and Corporate Change• International Journal of Environmental Studies• Journal of Environmental Management• Journal of Environmental Planning and Management• Journal of Management Inquiry• Journal of Management Studies• Landscape and Urban Planning• Local Environment• Management Learning• Natural Resources Journal• Organization• Organization Studies• Organizational Dynamics• Policy Sciences• Public Administration Review• Society and Natural Resources• Strategic Management Journal |
|--|---|

Recommended Texts

The following are recommended background reading:

- Harding R, CM Hendriks & M Faruqi 2009 Environmental Decision-making: Exploring Complexity and Context, The Federation Press, Sydney
- Walker B & D Salt 2006 Resilience thinking: sustaining ecosystems and people in a changing world, Island Press, Washington.
- Forester J 1989 Planning in the Face of Power, University of California Press, Berkeley.

Some useful websites

Organisation/Subject	Web Address
International	
World Bank	http://www.worldbank.org/
US Environment Protection Agency	http://www.epa.gov/epahome/
IISD Linkages	http://www.iisd.ca/
World Resources Institute	http://www.wri.org/
World Business Council for Sustainable Development	http://www.wbcsd.org
UNEP	http://www.unep.org
Greenpeace International	http://www.greenpeace.org/
World Wide Fund for Nature	http://www.panda.org/
IUCN World Commission on Protected Areas	http://www.iucn.org/themes/wcpa/
Mineral Policy Institute	http://www.mpi.org.au/
National	
Department of the Environment	https://www.environment.gov.au
National Landcare Program	http://www.nrm.gov.au/
Dept of Agriculture, Fisheries and Forestry	http://www.daff.gov.au/
Dept of Innovation, Industry, and Science	http://www.industry.gov.au/

Australian Conservation Foundation	http://www.acfonline.org.au/
Greenpeace Australia Pacific	http://www.greenpeace.org.au/
State	
NSW Government Departments	http://www.nsw.gov.au
NSW Legislation	http://www.austlii.edu.au/au/legis/nsw/consol_act/
EPA (Victoria)	http://www.epa.vic.gov.au/
Environment and Heritage Protection (Queensland)	http://www.ehp.qld.gov.au
EPA (SA)	http://www.epa.sa.gov.au/
Department of Environment and Conservation (WA)	http://www.dec.wa.gov.au
Nature Conservation Council of NSW	http://www.nccnsw.org.au/
Total Environment Centre	http://www.tec.org.au/
Local	
Hornsby Shire Council	http://www.hornsby.nsw.gov.au
Newcastle City Council	http://www.ncc.nsw.gov.au
City of Sydney	http://www.cityofsydney.nsw.gov.au
Local Government and Shires Association of NSW	http://www.lgsa.org.au
Others	
Environmental Defender's Office Network	http://www.edo.org.au/

Environmental News Sites

Students are expected to follow current developments with regard to environmental decision-making, environmental policy and sustainable development in the media.

The Conversation - <http://theconversation.com/au/environment>

Reneweconomy - <http://reneweconomy.com.au>

Sydney Morning Herald - <http://www.smh.com.au/environment>

ABC News - <http://www.abc.net.au/environment/>

Nature - <http://www.nature.com/news/>

Science - <http://news.sciencemag.org>

Ecos (CSIRO) - <https://blogs.csiro.au/ecos>

National Geographic - <http://news.nationalgeographic.com/news/archives/environment/>

Sustainable Business Australia - <http://www.sba.asn.au/sba/>

Planet Ark - <http://planetark.org/enviro-news/>

BBC News (UK) - http://www.bbc.co.uk/news/science_and_environment/

National Public Radio (USA) - <http://www.npr.org/sections/environment/>

Environment News Service - <http://www.ens-newswire.com/>

The Guardian (UK) - <http://www.theguardian.com/environment>

Salon (USA) - <http://www.salon.com/category/sustainability/>

Deutsch Vella (Germany) - <http://www.dw.de/top-stories/environment/s-11798>

Unit Schedule

12 weeks of Lectures and Tutorials. **There are no tutorials in week 1.**

Please check the University Timetable - <https://timetables.mq.edu.au> - to confirm the classrooms for tutorials and lectures, as sometimes these change at the beginning of Session (to adjust to numbers of students enrolling).

The design of this unit is informed by a simple heuristic: decisions that work,

- *make sense technically*: they are respectful of networks of cause and effect
- *make sense politically*: its possible to get enough stakeholders to align around them
- *make sense managerially*: they're appropriately resourced, and mistakes are identified and corrected.

Weeks 2 and 3 introduce a crucial technical lens, systems analysis; weeks 4 and 5 introduce some political lenses; and weeks 6 and 7 introduce some managerial lenses. The Guest Speaker workshops give you an opportunity to explore some ways these three lenses integrate in practice, and weeks 10 and 11 provide some theory and explicit practice skills that assist with integrating.

Week 1 - Introduction, and Global Environmental History

Week 2 - Systems Thinking I

Week 3 - Systems Thinking II

Week 4 - Stakeholders, knowledges, power & negotiation I

Week 5 - Stakeholders, knowledges, power & negotiation II

Week 6 - Environmental governance & management I

Week 7 - Environmental governance & management II

Week 8 - Guest workshop: putting yourself in a decision-maker's shoes I

Week 9 - Guest workshop: putting yourself in a decision-maker's shoes II

Week 10 - Integration in decision making I

Week 11- Integration in decision making II

Week 12 - Guest workshop: putting yourself in a decision-maker's shoes II

Week 13 - Guest workshop: putting yourself in a decision-maker's shoes III

Further details of the unit can be found on iLearn - <https://ilearn.mq.edu.au>.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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 outcomes

- Develop skills in applying creative and innovative thinking to environmental problem solving.
- Develop the capacity for independent learning and inquiry.

Assessment tasks

- Case Study 2
- Class 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 outcomes

- Develop skills in analysis, synthesis and critical thinking to support environmental decision making.
- Develop skills in applying creative and innovative thinking to environmental problem solving.
- Develop the capacity for independent learning and inquiry.
- Develop their sense of social, ethical and professional responsibility.

Assessment tasks

- Case Study 1
- Case Study 2
- Class Participation

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 outcomes

- Develop skills in applying creative and innovative thinking to environmental problem solving.
- Develop the capacity for independent learning and inquiry.

Assessment task

- Class Participation

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

- Develop skills in analysis, synthesis and critical thinking to support environmental decision making.

Assessment tasks

- Short Literature Report
- Case Study 1
- Case Study 2
- Class Participation

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 outcomes

- Develop skills in analysis, synthesis and critical thinking to support environmental decision making.
- Develop skills in applying creative and innovative thinking to environmental problem

solving.

- Develop the ability to write cogent and clearly structured reports that analyse environmental issues and options for decision makers.
- Develop their sense of social, ethical and professional responsibility.

Assessment tasks

- Short Literature Report
- Case Study 1
- Case Study 2
- Class Participation

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 outcomes

- Develop skills in identifying relevant findings and other information relevant to environmental decision making cases.
- Develop skills in analysis, synthesis and critical thinking to support environmental decision making.
- Develop skills in applying creative and innovative thinking to environmental problem solving.
- Develop the ability to write cogent and clearly structured reports that analyse environmental issues and options for decision makers.
- Develop the capacity for independent learning and inquiry.
- Develop their sense of social, ethical and professional responsibility.

Assessment tasks

- Short Literature Report
- Case Study 1
- Case Study 2
- Class Participation

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

- Develop the ability to write cogent and clearly structured reports that analyse environmental issues and options for decision makers.

Assessment tasks

- Short Literature Report
- Case Study 1
- Case Study 2
- Class Participation

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

- Develop their sense of social, ethical and professional responsibility.

Assessment tasks

- Case Study 1
- Case Study 2
- Class 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

- Develop their sense of social, ethical and professional responsibility.

Assessment task

- Case Study 1