



SCOM100

Science in the Public Sphere

S1 Day 2014

Dept of Environment & Geography

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>Assessment Tasks</u>	3
<u>Delivery and Resources</u>	6
<u>Unit Schedule</u>	7
<u>Learning and Teaching Activities</u>	10
<u>Policies and Procedures</u>	11
<u>Graduate Capabilities</u>	12

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
Credit points 3
Prerequisites
Corequisites
Co-badged status
Unit description Is science the best way to solve the world's greatest problems? This unit in science communication is a 'must do' unit for anyone passionate about the importance and function of science in today's society. SCOM100 has a media focus and throughout the semester we analyse examples of science communication in news, advertising, film, TV, literature and online media. Some of our topics include the popularisation of science; the role of citizenship journalism; the emotional and affective dimensions of communication; and the impact of new media technologies on the communication of science. This is a highly interactive unit where you'll have the opportunity to engage with leaders in science communication.

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:

Consider the importance, relevance and function of science in today's society.

Discuss the significance and limitations of the scientific method.

Debate the role of truth, ethics and power in science communication.

Discuss the emergence and significance of science communication and track its history and development.

Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication

Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Assessment Tasks

Name	Weighting	Due
Pop Quizzes	15%	Ongoing
Blog Review	5%	Week 4
Meet a scientist	30%	Week 7
Analytical essay	35%	Week 11
Class participation	15%	Ongoing

Pop Quizzes

Due: **Ongoing**

Weighting: **15%**

Three short-answer quizzes, each worth 5%, will be conducted sporadically throughout semester to test your knowledge of reading and lecture material. These quizzes will be administered at a date chosen by your tutor, and will allow 15 minutes to respond to 3 or 4 questions based either on the weeks set reading material or the weeks lecture.

Minimal feedback will be given for this task.

On successful completion you will be able to:

- Consider the importance, relevance and function of science in today's society.
- Discuss the significance and limitations of the scientific method.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Blog Review

Due: **Week 4**

Weighting: **5%**

Review a science blog of your choice (preferably in your field).

While you're planning and writing your review, think that the audience for your review will be generalist readers of online science magazines in the genre of **New Scientist**, **Discover Magazine**, **Popular Science** or **Cosmos**. Think about the style of writing that will fit the magazine's style and image. If your readers are children, how might you modify your language? What do the readers of those magazines look for in a blog... and in a review of a blog?

Use the ideas you discussed in tutorials plus the suggestions at the end of this guide to help you frame your review. Don't forget to state up front in which magazine you're hoping to have your review published! And don't forget to give the URL of the blog you're reviewing.

*Please note that will not receive extensive feedback on this assessment item. As well as giving you practice writing in different genres, the tasks will enable your tutor to identify students who may need further assistance with their writing skills.

On successful completion you will be able to:

- Consider the importance, relevance and function of science in today's society.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Meet a scientist

Due: **Week 7**

Weighting: **30%**

'Meet a scientist': Length: 550-700 words

Due date: Fri May 2nd 5pm

Worth

30%

In pairs, you will research a scientist from Macquarie, and plan and conduct an interview along the lines of those published on the ABC Science web. See:

<http://www.abc.net.au/science/indepth/meetascientist/>

The end result gives the reader the impression that this is an easy task, however it takes a lot of planning and editing and should be started in week 2 or 3.

Week 2/3: Select a partner to work with and choose some scientists whose work arouses your

interest.

Week 3: In class we will ensure that no one scientist is being interviewed multiple times – be prepared to support your choice with conviction! In your first phone call or email, ask for a publication or paper to read that will provide more detail for your interview plan. Research the story behind your scientist of choice and prepare your questions.

Weeks 4 - 5: With guidance you will prepare and practice interviews and carry out interviews with your scientist.

Week 5- 6: Write up draft interviews.

Semester break and Week 7: Edit your review. Don't underestimate how much time this will take.

Submit your individual pieces of work with a signed cover sheet to the Science Centre

On successful completion you will be able to:

- Consider the importance, relevance and function of science in today's society.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Analytical essay

Due: **Week 11**

Weighting: **35%**

Analytical Essay - 2000 words. Essay questions will be provided in Week 6. Due Friday 30 May 5pm. Guidance on essay writing and planning will be provided in tutorials.

On successful completion you will be able to:

- Consider the importance, relevance and function of science in today's society.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication

- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Class participation

Due: **Ongoing**

Weighting: **15%**

This mark is based on your in-class participation during tutorials. To receive a high mark for class participation you are required to actively contribute to class discussion and to demonstrate a thorough engagement with set reading and lecture material.

5% of your final participation grade will be based on an informal in-class presentation during tutorial times (to be allocated in week 2). This will involve a personal reflection on your learning experience in SCOM100, in relation to a set weekly topic or theme. This presentation will be 5 minutes long.

On successful completion you will be able to:

- Consider the importance, relevance and function of science in today's society.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Delivery and Resources

Classes

Delivery: Day

For current updates, lecture times and classrooms please consult the MQ timetables website: <http://www.timetables.mq.edu.au>.

Required and Recommended Texts and/or Materials

Texts

Essential texts: will be available at the Co op Bookshop. If there is a delay in the shop accessing this text, an announcement will be made at the first lecture.

Randy Olson, *Dont be such a scientist: talking substance in an age of style*, Island Press, 2009, Washington D.C.

Recommended:

Gregory and S. Miller (1998), *Science in Public: Communication, Culture and Credibility*, New York: Plenum Press.

Technology Used and Required

This unit will use: iLearn, iLecture

SCOM100 provides all students with web based support using iLearn. The way the unit is taught assumes that you are familiar with the system from previous core units. If you need help with iLearn please seek help through the Library which runs workshops on iLearn. Access should be possible at the University (Library and Computer Labs) as well as remotely via modem. All students should be able to use Public Library facilities to access the site regularly. If you have difficulty with access, let us know so we can discuss alternative arrangements.

Unit Schedule

Week	Who	Lecture Topic	Tutorial	Tasks and Assessment
1	KW	<p>Introduction: what is science communication?</p> <p>In this week we introduce the dynamic, interdisciplinary and diverse field of science communication.</p>	<p>Whats it all about and why is it important? We introduce you to science communication and give you a brief taste of what we will be covering throughout our course.</p>	<p>Read this guide through thoroughly and bring any questions to the</p> <p>Research science blogs in your field of study.</p>
2	KW	<p>Big science and Brand Science: science under attack</p> <p>Science is coming under increasing scrutiny and many don't perceive science to be relevant to their everyday lives</p>	<p>Does science matter? If so, why? What do we mean by the terms: public, public sphere, science?</p>	<p>Start thinking about which scientist you plan to interview.</p> <p>Design, draw, make, create an avatar for yourself. Why does this image represent you and the image of your future self?</p>
3	KW	<p>Popularisation of science & public engagement</p> <p>This week we turn our attention to the recent popularisation of science (since the 1980s) through the work of three key figures; Stephen Hawking, Richard Dawkins and Carl Sagan.</p>	<p>What are the advantages and disadvantages of opening up science to the public?</p>	<p>Bring your avatar with you to class and be prepared to talk about it.</p>

4	JS & KW	<p>Science in the media and the changing media ecosystem</p> <p>This week touches on Jurgen Habermas's theory of the public sphere and why/how it might be relevant to science communication. We also look at news values and their relationship to science communication and the crisis in science journalism and the decline of journalism in general.</p>	<p>What do we mean by the term media? What are the different models of communication and what are their advantages/ disadvantages? What's wrong with the information-deficit model?</p>	<p>Blog review due</p>
5	KW	<p>Language, Nature and Social Construction: Discourse, Power and the Philosophy of Science</p> <p>This week investigates the idea that science is a language of power and looks at the role of truth and discourse in science. It also introduces students to the Philosophy of Science and Science and Technology Studies (STS)</p>	<p>How can we argue that science is socially constructed? What do we mean when we say that, science is a language of power? What is meant by the term discourse? Why is nature such a loaded word? Is science absolute, or is it situated and relativistic?</p>	
6	KW	<p>Science in the Anthropocene: The Collapse of "Two Cultures" after Climate Change</p> <p>This week we will examine the new geological era coined the 'Anthropocene' and its potential impact on science communication.</p>	<p>What is 'the two cultures split'? How does the Anthropocene undermine the divide between humanities and science/ culture and nature? What will these changes mean for the role of a science communicator?</p>	
		<p>SEMESTER BREAK</p>		
7	KW	<p>Communicating Climate Change</p> <p>This week we look at the problems scientists face in communicating climate change to the public, and examine possible alternatives to the polemics that now dominate reporting and debate about the contemporary environmental crisis</p>	<p>What are the key barriers to the effective communication of climate change? How can scientists communicate scientific uncertainty without creating public passivity and doubt?</p>	<p>Meet A Scientist Assignment Due Friday 5pm</p>
8	MT	<p>Scientist as activist: Risk, doubt and truth</p> <p>In this lecture In this lecture we look at the risky process of communicating the science behind new technologies to an often sceptical public. Well also hear from Professor Mark Taylor and his life long career dedicated to communicating the risk of lead poisoning in children in local Australian mining communities.</p>	<p>Public responses to risk are informed by many things other than just the science. What are these other things?</p>	<p>Find an example of a recent news story that looks at the emergence of a new technology or health cure. Using some of the tools learnt in the first part of the course, look at the ways in which this new technology is portrayed in terms of benefits and risks (think of things such as language, symbols, framing).</p>

9	CS & KW	<p>Animals in Science: Ethics and Ethology</p> <p>This week we look at a number of ethical issues surrounding scientific practice, focusing particularly on nonhuman animals. We will examine the role of science in informing ethical decision-making, as well as the problematic historic relationship between scientific experimentation and progress, and cruelty to animals.</p>	<p>What is the relationship between science and ethics? How have animals been treated in scientific practice? How does science impact ethical decision-making in the public sphere?</p>	
10	DH	<p>Indigenous Science</p> <p>This week we look at Aboriginal Australian Science in the fields of meteorology, medicine and astronomy.</p>	<p>How can science communicators engage with Indigenous science? How does Australian Aboriginal science challenge C.P. Snow's "two culture" divide?</p>	
11	KW	<p>Fact or Faith: Science and Religion</p> <p>This week we look at the role science and religion play in our lives and think about how (or if) there is room for fact or faith in today's world.</p>	<p>In tutorials we will look at Randy Olson's 2006 film, <i>A Flock of Dodos</i>, a documentary about the introduction of Intelligent Design into classrooms across America, and ponder his conclusions. We will also have some lively debates about whether science and religion are irreconcilable.</p>	Essays due Friday 5pm
12	JW	<p>Science on Film</p> <p>This week we look at the way science is portrayed on the big screen, and explore the relationship between myths and narratives of science, and the "real" world of science communication.</p>	<p>How do cinematic visions of mad scientists, runaway creations, and technological take-over shape our responses to Big Science?</p>	
13	KW	<p>Science in Art</p> <p>This week we bring together the various themes of the unit through a look at the fascinating intersection between science and art, focusing particularly on BioArt which uses scientific processes and material to produce creative works.</p>	<p>Are science and art oppositional, or mutualistic? What are the ethical issues raised by BioArt, and how do they mimic the ethical issues discussed throughout the unit? How will what you have learned in SCOM100 influence how you think about science and its relationship to your life?</p>	

For the full program detail, please refer to the Weekly Detailed Schedule

Key to abbreviation for lecturers:

KW = Dr Kate Wright

JS = Dr John Scannell

CS = Dr Carolynn (K-Lynn) Smith

MT = Prof Mark Taylor

DH = Dr Duane Hamacher

JW = Mr Josh Wheatley

Learning and Teaching Activities

What is Science Communication

What's it all about and why is it important? We introduce you to science communication and give you a brief taste of what we will be covering throughout our course.

Big Science & Brand Science: Science under attack

What do we mean by the terms: public, public sphere, science?

Popularisation of science & public engagement

What are the advantages and disadvantages of opening up science to the public?

Science vs arts: two (three) cultures

What is the relationship between science and culture, between science and the arts?

Science, Nature & social construction

How can we argue that science is socially constructed? What do we mean when we say that, "science is a language of power"? What is meant by the term discourse? Why is 'nature' such a loaded word?

Audiences, News & models of communication

What do we mean by the term media? What are the different models of communication and what are their advantages/disadvantages? What's wrong with the information-deficit model?

Cinematic Science: Cane toad case study

We look at the kind of language used to describe the cane toad and its behaviour? What are the dominant discourses? What is it about *bufo marinus* that makes it so newsworthy?

Citizen scientists & science journalism

Are all those science blogs that you can find on the web examples of science journalism?

Scientist as Activist: risk, doubt & truth

Public responses to risk are informed by many things other than just the science. What are these other things?

Campaigns & Protocols: Don't be such a scientist

Why is communicating science to the public so complex?

Fact or Faith: Science & religion

Can religion exist for committed scientists? Richard Dawkins thinks not but many scientists have faith in religion, such as Darwin. Is there conflict? Is science a religion in its own right?

From Frankenstein to Flannery: myth, charisma, affect & the science communicator

What are some of Randy Olson's tips that you think might be useful if you pursued a career as a science communicator?

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.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

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

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

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/

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://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

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

- Debate the role of truth, ethics and power in science communication.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication

Assessment tasks

- Pop Quizzes
- Blog Review
- Meet a scientist
- Analytical essay
- 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

- Consider the importance, relevance and function of science in today's society.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication

Assessment tasks

- Pop Quizzes
- Analytical essay
- 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 outcomes

- Consider the importance, relevance and function of science in today's society.
- Discuss the significance and limitations of the scientific method.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV,

web based media) and determine who the intended audience is and evaluate their effectiveness.

Assessment tasks

- Pop Quizzes
- Blog Review
- Meet a scientist
- Analytical essay
- 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

- Consider the importance, relevance and function of science in today's society.
- Discuss the significance and limitations of the scientific method.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Assessment tasks

- Pop Quizzes
- Blog Review
- Meet a scientist
- Analytical essay
- 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

- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Assessment tasks

- Blog Review
- Meet a scientist
- Analytical essay
- Class participation

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

- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Assessment tasks

- Blog Review
- Meet a scientist
- Analytical essay
- 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 outcomes

- Discuss the emergence and significance of science communication and track its history and development.
- Critique a range of science texts (news, book reviews, advertising, literature, film, TV, web based media) and determine who the intended audience is and evaluate their effectiveness.

Assessment tasks

- Pop Quizzes
- Blog Review
- Meet a scientist
- Analytical essay
- 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 outcomes

- Consider the importance, relevance and function of science in today's society.
- Debate the role of truth, ethics and power in science communication.
- Discuss the emergence and significance of science communication and track its history and development.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication

Assessment tasks

- Blog Review
- Meet a scientist
- Analytical essay
- 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 outcomes

- Debate the role of truth, ethics and power in science communication.
- Examine the dissemination of science in politics, public debate and decision making and identify the different models / theories of communication

Assessment tasks

- Analytical essay
- Class participation