

Science Communication Course

Elective in the UNU-IAS Masters in Sustainability

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Rationale for the Course: Science communication is a contentious subject area that covers a spectrum of concerns from the factual dissemination of scientific research to new models of public engagement.

We live in a time when public understanding of complex social and environmental problems is of unprecedented value for our individual and collective welfare. We also recognize that the proportion of decisions made - by individuals and by society - based on the effective use of scientific information is shockingly small.

This is reflected in the failure of governmental institutions to utilize the best available scientific evidence when developing policies related to societal safety, security, and prosperity. It further manifests in the inability of citizens and their political representatives to even agree on what that evidence is or what it signifies for the associated policy tradeoffs.

This course is designed for graduate students (natural and social scientists) who are concerned about how best to effectively transmit their scientific knowledge and research outputs to their target audience, however defined – policy-makers, their peers, journalists, and/or the public.

This course offers students the opportunity to reflect upon why it is important to creatively communicate scientific knowledge, to gain awareness on the best ways to achieve this and to understand the issues and ethical dilemmas that define the process of science communication in relation to the media.

The course provides valuable insights (drawn from practical/professional experience) on the representation, framing and expression of sustainability concerns across a range of media within different cultural contexts.

The course examine ways in which worldviews, beliefs and practices are represented (and at times ignored) in public policy, legislative responses and the practical solutions pursued. Applying knowledge and competencies developed through this course, the students will experiment with the design of media communication strategies that frame environmental concerns to resonate with their target audiences.

Students will consider how it is possible to avoid speaking in technical jargon when addressing the public and how to communicate complex research outcomes in comprehensible ways (without dumbing down).

This course seeks to develop student abilities to communicate science effectively in a variety of real-world contexts. It covers strategies for dealing with complex research topics, and addresses challenges in communicating about topics such as climate change, urban biodiversity, energy security, and so on.

The assignments in this course build competencies focusing on speaking, presenting and writing, understanding the use of social media and the importance of the web as a communications platform.

Learning Outcomes

At the end of this course students will be able to:

- Describe several discourses on environment and nature that are currently in global circulation.
- Link worldviews, beliefs and practices to such underlying discourses on environment and nature.
- Analyse a representation of the environment in terms of underlying worldviews, beliefs and practices.
- Use contemporary media strategies to promote a representation of the environment and/or nature.
- Demonstrate how cultural forms are used for social and political ends in relation to environmental issues.

- Describe how cultural dialogues on the environment can lead to change in environmental sustainability.
- Describe and apply strategies for effective media engagement in the communication of environmental social and political action.
- Develop a sophisticated understanding of the role of communication in science.
- Constructively and critically analyse popular science communication in a variety of real-world settings.

Competences

- Students will learn to speak clearly and vividly about their science and why it matters, in terms non-scientists can understand.
- Students will develop the ability to write about science for a public audience without “dumbing down” their message.
- Students will learn how to use blogs, Twitter and other forms of social media for two-way communication with different segments of the public.

Course Requirements

The course will comprise 9 days of lectures and activities over three weeks. Students are required to attend and participate actively in the classes.

Assignments will involve reading, listening to or viewing relevant sources before class, written composition, strategy development and presenting. It is crucial that pre-class assignments/readings are completed, as this will be essential for effective participation in the relevant class discussions.

This is a communications intensive course. The emphasis is on writing: the writing process, from pre-writing through drafting, revising, and editing; and the rhetorical dimensions of writing: the audience for whom one is writing, and the purpose for which one is writing—to argue, inform, persuade, explain, convince, and so on.

Assignments and Assessment

Assignments	Percentages	Breakdown
Attendance at and active participation in class	15%	1% for each lecture and for the completion of five worksheets.

Pecha-Kucha Presentation: Assessed speaking assignments and presentations	20%	Joint presentation by the students in pairs.
Assessed writing assignment	25%	Article for The Conversation.
Media strategy development	30%	Preparation for and participation in discussions.
Presentation of the media strategy	10%	Video recorded group presentation.

Details of Assignments

Assignment		Weighting
1:	Participation and Engagement – Assessed through-out the course and requires completion of worksheets. It is important that you understand why we place emphasis participation and engagement. Participation focuses on your involvement with whole-of-class and group activities. Your work in discussions with the class and in groups allows your course coordinator to witness your approach to participation; the extent to which you suggest ideas, listen, support your colleagues and contribute.	15%
2:	Presentation - Students will prepare and present in pairs a Pecha-Kucha presentation (20 slides, 20 seconds each slide). For best results and marks, it is highly recommended that students prepare and rehearse. The goal is to resonate with the audience (other students) and to grab their attention, using various devices such as metaphors, pacing, stories and references that connect. The following criteria will be applied to assess each presentation: (1) Is the idea supported by research/evidence? (2) Does the presentation impart new insights/knowledge? (3) Are the presenters clear, engaging and easy to understand? (4) Do the visuals enhance the presentation? (5) Did the presenters successfully use devices to represent/reframe the issue?	20%
3:	Article for The Conversation - Written assignment of approximately 800 words. A detailed assignment handout will be provided. In case you are unfamiliar with The Conversation, it is an independent source of news and views,	25% <i>Breaks down as follows:</i> <i>6% research</i>

	sourced from the academic and research community and delivered direct to the public. It reaches, on average, around 3 million readers each month and provides an excellent opportunity for academics to share their research outcomes and to inform public debate around the issues of today.	6% <i>issue identification</i> 6% <i>analysis</i> 7% <i>structure and writing</i>
4:	Media Strategy Development of a Media/Communications Strategy around an environmental issue and related research. For more information see below	30% <i>Breaks down as follows;</i> 6% <i>research</i> 6% <i>background/context</i> 6% <i>target audience</i> 6% <i>evidenced discussion</i> 6% <i>visual design</i>
5:	Group presentation of the media strategy (15 minutes for each group). The presentations will be video recorded.	10%

Developing a Media Communications Strategy

This assignment provides an opportunity for students to apply key ideas from this course in a professional context. Students will work in groups based on a common environmental interest and determined by the course coordinator. The purpose is multifold. Students are expected to consider a range of concerns that have emerged, or been discussed, in the course. How is an issue framed, both tacitly and intentionally? How do we manage and create that framing? How are decisions made about what to communicate using what metaphors, images or media? Students are expected to draw on ideas from the course and their wider reading to build a case for the decisions their group makes.

The assumption is that the group has been asked by a client (government agency, local council, environmental NGO, business) to develop a proposal for a communications/media strategy related to a key environmental issue. An example of a UNU project developed for the Japanese Ministry of Environment for a video documentary about the Fukushima nuclear accident will be shared. Here are some options to consider:

- A strategy for raising the media profile of an environmental/sustainability issue.
- Engage with an agency to identify and investigate their media needs (generally or on

a specific issue/campaign).

- Engage with a media advertising agency to promote and environmental cause or to raise awareness of a particular product.
- Develop a campaign to raise awareness of the corporate social responsibilities related to the environment of a trans-national corporation.
- Evaluate and design a media strategy/campaign for a political organisation or party.
- Evaluate and design a media strategy/campaign for a specific current issue.
- Develop and design a media strategy for community engagement in a particular region or with a particular demographic.

Students are required to consider (but are not limited to) the needs of a client, the likely target audience, the objective of the message/communication, their professional views and expertise, as individuals and as a team. In addition to all these students should consider demographic factors in the community(s) – how to reach them, why that way, and how do you determine this? All of this must be done using verified evidence to underpin choices and considerations. How do you go about investigating what is the best medium or message for an environmental or sustainability concern?

The output for assignment will be a proposal for a media communications strategy to the client. This is essentially a 15-minute presentation designed to get groups to clarify their objective(s) and processes, and the evidence base they are drawing on.

Course Schedule

Week 1: October 9 (Tues)	October 10 (Wednesday)	October 11 (Thursday)
9.30-10.45 Lecture 1: Course Introduction: Why be a Science Communicator?	9.30-10.45 Lecture 4: Resonate with Your Audience	9.30-10.45 Peer collaboration: Students work in pairs to prepare their Pecha-Kucha Presentations – 20 slides x 20 Seconds
11.00.12.30 Lecture 2: Understanding Issue Representation and Framing	11.00.12.30 Lecture 5: Scientists Need Artists - Leveraging Design in Your Work	
14.00-15.30 Lecture 3: Using the Web & Social Media to Share Your Research and Connect with Your Audience	14.00-15.30 Peer collaboration: Students work in pairs to prepare their Pecha-Kucha Presentations – 20 slides x 20 Seconds	
Week 2: October 15 (Mon)	October 16 (Tues)	October 17 (Wed)
9.30-10.45 Student Presentations	9.30-10.45 Lecture 7: On The Record: Communicating with the Media (presentation from a journalist)	9.30-10.45 Lecture 8: Representations, Politics and Change – Practical example of the Clean Up Fukushima Project

11.00.12.30 Lecture 6: Writing Effectively about a Sustainability Issue	11.00.12.30 Students work on articles for The Conversation	11.00.12.30 Lecture 9: Development of a media campaign
14.00.15.30 Students work on articles for The Conversation	14.00-15.30 Students work on articles for The Conversation	14.00-15.30 Peer review of initial draft of Conversation Articles
Week 3: October 22 (Mon)	October 23 (Tues)	October 24 (Wed)
9.30-10.45 Group Work: Students Work on a Media Strategy –Presentation.	9.30-10.45 Feedback on Conversation Articles	9.30-10.45 Lecture 10: Seeing is believing – Harnessing the power of Audio-visual messaging (presentation by a documentary film maker)
11.00.12.30 Group Work: Students Work on a Media Strategy –Presentation	11.00.12.30 Group Work: Students Work on a Media Strategy –Presentation.	11.00.12.30 Students present Media Strategy – video recorded
14.00-15.30 Group Work: Students Work on a Media Strategy – Presentation	14.00-15.30 Group Work: Students Work on a Media Strategy –Presentation.	14.00-15.30 Students present Media Strategy – video recorded Wrap-up/Feedback

Required Readings

Webb, J. 2009, Understanding representation, Sage: London. Introduction: the terms of representation pp 1-18.

Lakoff, G. 2004, Framing 101: How to Take Back Public Discourse, excerpt from Don't think of an Elephant: Know your values and frame the debate, published by Chelsea Green, Vermont, USA.

Shove, E. 2010, Beyond the ABC: climate change policy theories of social change, Environment and Planning A, 42, pp 1272-1285.

Coffey, B. 2015, Unpacking the politics of natural capital and economic metaphors in environmental policy discourse, Environmental Politics,

Final Chapter from Marshall, G. 2014, Don't Even Think About It - Why Our Brains are Wired to Ignore Climate Change, Bloomsbury.

Additional Readings

Baron, N. (2010) *Escape from the Ivory Tower – A guide to making your science matter*, Island Press, Washington.

Bennett, D.J. and Jennings, R.C. (eds) (2011) *Successful Science Communication – Telling it like it is*, Cambridge University Press, Cambridge.

Bowater, L. and Yeoman, K. (eds) (2013) *Science Communication – A Practical Guide for Scientists*, Wiley-Blackwell, Oxford.

Bubela, T. et. al. (2009) *Science Communication Reconsidered*, *Nature Biotechnology*, Vol. 27, No.6., pp.54-518.

Donovan, J. (2012) *How to Deliver a TED Talk – Secrets of the World's Most Inspiring Presentations*.

Duarte, N. (2010) *Resonate: Present Visual Stories That Transform Audience*, John Wiley and Sons.

Duarte, N. (2008) *Slide:ology: The Art and Science of Creating Great Presentations*, O'Reilly Media.

Olson, R. (2009) *Don't be such a Scientist – Talking substance in an age of style*, Island Press, Washington.

Reynolds, G. (2011) *Presentation Zen: Simple Ideas on Presentation Design and Delivery*, New Riders.