

## **UNU-IAS, RMIT Science Communication Course 2016**

### **Elective in the Masters in Sustainability**

**Date: 14-23 November 2016**

**Course Coordinator:** Brendan F.D. Barrett, RMIT University

**Lecturers/Facilitators:** Daniel Powell, Sean Wood and Curtis Christophersen (United Nations University), Editor/journalist (The Conversation via Skype), and Luis Patron

#### **Rationale for the Course:**

Science communication is a “complex and contentious topic that covers a spectrum of issues from factual dissemination of scientific research to new models of public engagement” (Bubela et. al. 2009).

We live in a time when scientific understanding of complex problems is of unprecedented value for our individual and collective welfare. But 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.

The evidence for this conclusion is reflected in the awful decisions people make, and consequences they suffer as a result, in their personal health and financial planning.

It is reflected in the failure of governmental institutions to utilize the best available scientific evidence that bears on the safety, security, and prosperity of its members. It is also reflected in the inability of citizens and their political representatives to even agree on what that evidence is or what it signifies for the policy tradeoffs acting on it necessarily entails.

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, journalists, the public.

We will consider how it is possible to avoid speaking in technical jargon when addressing the public or about how we can communicate complex research outcomes to journalists in comprehensible ways. We will also reflect upon how to make presentations that resonate with our audience rather than slides that look like a cut and paste from a journal article or dissertation with walls of text.

We will also address the misleading notion that effective science/research communication is uniform across contexts. We cannot necessarily use the same communication techniques to explain the risks of cancer from radiation as we would to try to dispel polarization over climate science. We will try to individuate the separate domains in which science communication is needed.

This course offers student/researchers the opportunity to reflect on why it is important to 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.

This course seeks to develop student abilities to communicate their 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, and giving live interviews for broadcast, understanding the use of social media and the importance of the web as a communications platform.

### Learning Outcomes

- To provide an introduction to popular science communication in the broader contexts of (a) the role of communication in science, and (b) the cultural, practical and policy-related role of science communication in wider society;
- To provide intellectual resources for constructive critical analysis of popular science communication in a variety of real-world settings;
- To cultivate participants' practical communication skills, with particular emphasis on effective speaking, writing and exhibiting on scientific and science-related topics to a variety of audiences; and
- To provide participants with a range of resources and skills for effective communication of complex material.

### Competences

- You will learn to speak clearly and vividly about your work and why it matters, in terms non-scientists can understand.
- You will develop your ability to write about science for a public audience without "dumbing down" your material.
- You will learn how to use blogs, Twitter and other forms of social media for two-way communication with different segments of the public. Includes hands-on instruction, tailored to your experience.
- You will practice communicating with key audiences, such as fellow scientists, journalists and public officials.

## Course Requirements

The course will comprise 15 sessions over a week and a half. You are required to attend and participate actively in the classes.

Assignments will involve reading, listening to or viewing relevant sources before class, and written composition. It is crucial that you complete pre-class assignments, as this will be essential for effective participation in the relevant class discussions.

This is a communications intensive course. Given how important revision is to composition, many assignments will be revised. 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 class
Assessed speaking assignments and presentations	20%	Two speaking assignments
Assessed writing assignment	25%	Article for Our World
Student-led discussion and Interactive discussion	20%	Preparation for and participation in discussions
Assigned video interview	20%	Video interview

## Timing and Details of Assignments

Session		
Session 1:	<p>A. Personal Introductions</p> <p>B. One sentence summing up your research based on "lol my thesis" model (<a href="http://lolmythesis.com/">http://lolmythesis.com/</a>)</p> <p>For example:</p> <ol style="list-style-type: none"> <li>1. No one in finance has any idea what they are doing.</li> <li>2. We planted too many big trees but now we're not cutting them down and no-one knows what to do next. Especially not me.</li> <li>3. Maybe don't listen to sad music if you're depressed.</li> </ol>	Share oral presentation guidelines. Show Gettysburg Address video.
Session 3:	<p>Oral Presentation:</p> <p>Speak for three minutes about a science topic that interests you. Assume audience is intelligent but knows little about the subject. Note – choose your topic carefully. Prepare to be interesting, understandable, and memorable. Use one image max. Use notes, but don't read. Time yourself beforehand.</p>	Opportunity to see the participants public speaking skills. Watch MLK I have a Dream.

Session 5:	Each participant allocated five minutes to make a presentation using PowerPoint or Keynote.	Effective use of visual props.
Session 8:	Interactive Discussion with journalist/editor from The Conversation	Understand what makes a successful article.
Session 12:	Participant video interviews.	Participants will interview each other in pairs.
Session 13:	Student-Led Interactive discussion	Reading materials provide in advance on what makes research policy-relevant.
Session 14:	Participants will have completed a short article for The Conversation or Our World..	

## Course Schedule

November 14 (Mon)	November 15 (Tuesday)	November 16 (Wed)	November 17 (Thurs)	November 18 (Friday)
10.00-11.30	10.00-11.30	10.00-11.30	10.00-11.30	10.00-11.30
Session 1: Introduction: Why Be A Science Communicator? Brendan Barrett	Session 3: Talking Science: In the Elevator or the Hallway, Brendan Barrett	Session 5: Student Presentations, Brendan Barrett and Curtis Christophersen	Session 7: Students Writing Effectively, Daniel Powell	Session 9: Using the Web and Knowing your Audience, Sean Wood
	Students make a three minute oral presentation on scientific topic	Each student allocated five minutes to make a presentation using Powerpoint or Keynote.		
14.00-15.30	14.00-15.30	14.00-15.30	14.00-15.30	14.00-15.30
Session 2: Resonate with your audience, Brendan Barrett and Curtis Christophersen	Session 4: Leveraging Design in Your Work, Curtis Christophersen	Session 6: Writing about your Research, Daniel Powell	Session 8: On The Record: Communicating with the Media, Representative from The Conversation	Session 10: Understanding and using Social Media, Brendan Barrett
		Students spend time working on their articles	Interactive Discussion	
November 21 (Mon)	November 22 (Tues)	November 23 (Wed)	November 24 (Thurs)	November 25 (Friday)
10.00-11.30	10.00-11.30	10.00-11.30	10.00-11.30	10.00-11.30
Session 11: Seeing is Believing, Luis Patron	Session 13: Communicating Science to Policymakers, Brendan Barrett	Session 15: Course Evaluation and Discussion, Brendan Barrett		
	Student-led discussion			
Session 12: Getting to the heart of the mater, Luis Patron	Session 14: Reviewing student's Our World articles, Daniel Powell and Brendan Barrett			
Student- interviews recorded on video	Students submit their articles and get feedback			

## Course Syllabus

### **Session 1: Introduction: Why be a Science Communicator?**

We will briefly review some of the main landmarks in the development of professional scientific communication. We share insights on recent developments in science communication, mainly drawing from experience in the United Kingdom related to the rise of the Public Understanding of Science (PUS) and Public Engagement with Science and Technology (PEST) movements in the late 20th century.

You are required to submit one sentence summing up your research (following the lol my thesis model).

### **Session 2: Resonate with your audience**

Here we explore some of the common pitfalls with formal presentations and examine the role of the creative process, how to bring out your own creativity, as well as how your presentation can resonate with the audience.

### **Session 3: Talking Science: In the elevator or the hallway**

You should come to class prepared to speak informally and briefly (maximum 3 minutes) about your research topic. Assume the audience is intelligent but knows little or nothing about your subject.

### **Session 4: Leveraging design in your work**

In this session, we will explore the ten principles of good design based on the work of Dieter Rams, Chief Design Officer at Braun, and with reference to the work of the United Nations University.

### **Session 5: Presentations**

Each participant will make a short 5 minute presentation on your research using either PowerPoint or Keynote.

### **Session 6: Writing about your research**

Story-telling lies at the heart of nearly all communication. Even 'objective' genres of media communication, such as news, are all about telling stories and these narrative structures construct and constrain the way we see the world. You will be asked to develop a pitch for an article in The Conversation or Our World.

### **Session 7: Writing Science 2: Writing effectively**

You will work on your first outline of your article. This could be related to your own research or an interesting scientific topic.

### **Session 8: On the Record: communicating with the media**

An interactive discussion with an editor from The Conversation on the complexities of communicating science in the media.

### **Session 9: Share your Research Online: know your audience**

In this session we aim to provide you with sufficient understanding of website construction to enable them to liaise with designers and programmers. The emphasis is on design and structure, rather than technical programming skills. You

should be able to understand website architecture, interactivity, usability, and design aesthetics. We will introduce a number of analytic tools that enable you to follow your audience online, understand their interests and enhance the performance of your website.

### **Session 10: Understanding and using social media**

The face of media communications has been transformed by the advent of the web and by the emergence of social media. While many researchers are using these tools for personal reasons, few are using them to effectively undertake their research, to collaborate or to disseminate their research findings.

### **Session 11: Seeing is believing - Visualizing your science through video documentary production**

Documentaries show us situations and events that are recognizably part of a realm of shared experience. It is this status of documentary film as evidence from the world that legitimates its usage as a source of knowledge. Documentary films raise a rich array of issues: legal, philosophical, ethical, political and aesthetic. In this lecture we look at these issues within the context of viewing and discussing some video work of the UNU and seminal works in the history of the documentary film.

### **Session 12: Getting to the Heart of the Matter: conducting interviews**

This session is devoted to the practice of communication via video interview. You will develop technical skills in interviewing and being interviewed. You are encouraged to develop an interview style very similar to that found on the BBC's Hard Talk series. You will play the roles of interview and interviewee, and the interactions will be caught on video.

### **Session 13: Communicating science to policymakers**

How is public policy determined? To what extent is knowledge and research a factor in policymaking? To what extent is the process a function of politics and power? What is the role of communication and the mass media?

### **Session 14: Reviewing your articles**

You will complete your articles in the style of specified and receive detailed feedback. The session develops your skills in sourcing and researching stories, finding an angle appropriate for the publication and audience, interviewing, structuring stories, and writing accurately.

### **Session 15: Course evaluation and discussion**

In this session you will have the opportunity to give feedback on the course and suggest areas for improvement.

## **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.