

Course Number: MAR 599 (submitted for permanent course number MAR522)

Course Title: Science Communication for Research Scientists: delivering effective messages to diverse audiences

Instructors: Gavin Fay, Associate Professor
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Class Location: SMAST East, New Bedford. Room 102

Class Time: Friday 9:30-12:00

Office Hours: T/Th 10:00-11:00, F 13:00-14:00, and by appointment

COVID-19 contingency: Should circumstances dictate the need for remote course delivery, class sessions will transition to take place in a remote setting using Zoom. Small modifications to the in-class activity schedule will be made to accommodate any needed remote instruction.

Course Description:

Practice and development of skills for communicating scientific research to a diverse set of audiences. This course is for students in the sciences interested in applications of their research to management and policy, focusing on the importance of defining the ‘so what’ of research and adapting messaging to specific audiences, using storytelling techniques to produce compelling presentations of scientific research. Drawing on communication case studies and their own academic interests as context, students will practice delivering their message effectively for different audiences, including defining goals, identifying main points, building narrative, explaining meaning and context, responding to questions, and using multimedia elements. Students will develop and apply skills for communicating their research to scientific peers, the management community, stakeholders, and the general public. In-class activities and assignments will emphasize presentation skills, writing, reflection, and constructive criticism through peer-review of classmates’ work. The role of the review process for how best available science is incorporated into policy and decision-making in the context of fisheries management will be used as a case study during the course. Topics and activities have relevance for many disciplines at the science-management-policy interface.

Course Objectives:

1. Construct narratives for scientific research that are targeted to specific audiences
2. Understand how to apply individual research in a broader scientific and management context
3. Improve presentation skills for communicating research to a variety of audiences

Credits: 3

Evaluation procedures:

1. Weekly assignments (30% of course grade), due before the next class by email.
2. Two class presentations (20%): lightning talk for a scientific meeting, and to an audience of resource managers.

3. Op-ed magazine/newspaper article on a scientific issue related to research topic (10%)
4. Public presentation (15%): presentation of inter-disciplinary research to a public audience.
Fall 2020: likely product - group presentation at the New Bedford Science Café.
5. Participation in class discussions and in-class activities (25% of course grade). Attendance and engagement in all sessions is the best way to understand topics and assignments. Absence from class can be requested in advance.
6. Failure to complete any of these requirements for evaluation will result in a score of zero for missing components. A final grade of 'incomplete' may be recorded at the request of the student and the discretion of the professor.
7. If you have read this far, please use google search to find a quote on science communication, and send it to Gavin Fay attached to an email with the subject line "Here is a soundbite"
8. No academic dishonesty, including plagiarism, will be tolerated and the University Academic Integrity policy applies:
<http://www.umassd.edu/studentaffairs/studenthandbook/academicregulationsandprocedures/>

A full description of Academic Policies associated with this and other UMass Dartmouth courses can be found at:

https://www.umassd.edu/media/umassdartmouth/provost/omnibus_language_for_syllabi_-_jan_11_2019.pdf

Recommended Reading:

Baron, N., 2010. *Escape from the ivory tower: a guide to making your science matter*. Island Press. (~\$28 online).

Support website for book (<http://www.escapefromtheivorytower.com/>)

COMPASS Science Communication, Inc. (2017). *The Message Box Workbook*.

<https://www.compasscicomm.org/>

Gosling, P & B Noordam 2006. *Mastering your Ph.D.: giving a great presentation*. Science

<http://www.sciencemag.org/careers/2006/10/mastering-your-phd-giving-great-presentation>

Martinez-Conde, S. and Macknik, S.L., 2017. Opinion: Finding the plot in science storytelling in hopes of enhancing science communication. *Proceedings of the National Academy of Sciences*, 114(31), pp.8127-8129.

McBride, RS. 2009. Several books to read and thereby delay writing your thesis. *Fisheries* 34: 80-82. (and references therein)

National Academies of Sciences, Engineering, and Medicine. 2017. *Communicating Science Effectively: A Research Agenda*. The National Academies Press doi: 10.17226/23674.

Available online at <https://www.nap.edu/download/23674>

Olson, R. 2009. *Don't be such as scientist*. Island Press.

Schmidt, CW. 2009. Gap: The disconnect between what scientists say and what the public hears. *Environmental Health Perspectives* 117(12):A548-A551.

Shepherd, M. 2016. 9 Tips For Communicating Science To People Who Are Not Scientists.

Forbes <https://www.forbes.com/sites/marshallshepherd/2016/11/22/9-tips-for-communicating-science-to-people-who-are-not-scientists/>

Shiffman, D.S., 2018. Social media for fisheries science and management professionals: how to use it and why you should. *Fisheries*, 43(3), pp.123-129.

Sullivan, PJ, J Acheson, PL Angermeier, T Faast, J Flemma, CM Jones, EE Knudsen, TJ Minello, DH Secor, R Wunderlich & BA Zanetell. 2006. *Defining and implementing best*

available science for fisheries and environmental science, policy, and management. *Fisheries* 31: 460-465.

Tufte, E. R. (2001) *The visual display of quantitative information*. 2nd edn. Cheshire, CT: Graphics Press.

Winowiecki L, S Smukler, K Shirley, R Remans, G Peltier, E Lothes, E King, L Comita, S Baptista & L Alkema. 2011. Tools for enhancing interdisciplinary communication. *Sustainability: Science, Practice, & Policy* Volume 7: 74-80.

Yochum, N, RM Starr & DE Wendt. 2011. Utilizing fishermen knowledge and expertise: keys to success for collaborative fisheries research. *Fisheries* 36: 593-605.

Title IX statement: The purpose of a university is to disseminate information, as well as to explore a universe of ideas, to encourage diverse perspectives and robust expression, and to foster the development of critical and analytical thinking skills. In many classes, including this one, students and faculty examine and analyze challenging and controversial topics.

If a topic covered in this class triggers post-traumatic stress or other emotional distress, please discuss the matter with the professor or seek out confidential resources available from the Counseling Center, <http://www.umassd.edu/counselling/>, 508-999-8648 or -8650, or the Victim Advocate in the Center for Women, Gender and Sexuality, <http://www.umassd.edu/sexualviolence/>, 508-910-4584. In an emergency contact the Department of Public Safety at 508-999-9191 24 hrs./day.

UMass Dartmouth, following national guidance from the Office of Civil Rights, requires that faculty follow UMass Dartmouth policy as a “mandated reporter” of any disclosure of sexual harassment, abuse, and/or violence shared with the faculty member in person and/or via email. These disclosures include but are not limited to reports of sexual assault, relational abuse, relational/domestic violence, and stalking. While faculty are often able to help students locate appropriate channels of assistance on campus, disclosure by the student to the faculty member requires that the faculty member inform the University’s Title IX Coordinator in the Office of Diversity, Equity and Inclusion at 508-999-8008 to help ensure that the student’s safety and welfare is being addressed, even if the student requests that the disclosure not be shared.

For confidential counseling support and assistance, please go to <http://www.umassd.edu/sexualviolence/>

Course outline and tentative schedule (Subject to Change):

| Date | Topic | Reading | Activity | Assignment |
|--------------|---|----------------------------------|--|------------------------------------|
| 09/04 | Carrier pigeon to TikTok: course introduction | Schmidt 2009, Baron C1-2 | Jargon discussion; student #SciComm goals | Elevator pitch |
| 09/11 | Distilling your message | Compass 2017, Baron C8 | Message Boxing | Message Box |
| 09/18 | What's the narrative? Storytelling in science | Martinez-Conde & Macnik 2017 | Storytelling exercises | Blogpost |
| 09/25 | Interviewing, Podcasts/radio in STEM communication | Baron C9-10; Mead, 2018 | Interviewing, | Summary of a UMassD research paper |
| 10/02 | Visualizing information | Tufte 2001 | Messaging using Figures | Infographics |
| 10/09 | Scientific presentations | Gosling & Noordam 2006 | Pecha Kucha | Science speed presentation |
| 10/16 | Student Science Presentations | | retention exercise; mgmt relevance discussion | Policy brief |
| 10/23 | Networking at conferences | | SMAST/DMF roundtable | |
| 10/30 | Science-policy interface, resource management process | Sullivan et al. 2006, Baron C6-7 | Pitching to policymakers | Management Presentation |
| 11/06 | Student Management Presentations | Shiffman, 2018 | Discussion/Student critique, science-café workshop | Op-ed 1 st draft |
| 11/13 | Translating & writing for the public | Clark, 2013 | Sci Café prep | Op-ed student edits |
| 11/20 | Building a web presence | | Personal website | Science Café preparation |
| 11/27 | THANKSGIVING BREAK | | | |
| 12/1 | New Bedford Science Cafe | | | |
| 12/4 | Developing your ongoing communication strategy | | Evaluations/Course critique | SciComm roadmap |
| 12/10 | | | | final Op-ed due |