

**Course Number:** MAR 580  
**Course Title:** Science Communication for Research Scientists: delivering effective messages to diverse audiences

**Instructors:** Steve Cadrin, Professor  
School for Marine Science & Technology  
SMAST East 121; (508) 910-6358; [scadrin@umassd.edu](mailto:scadrin@umassd.edu)

Gavin Fay, Assistant Professor  
Department of Fisheries Oceanography  
School for Marine Science & Technology  
SMAST East 228; (508) 910-6363; [gfay@umassd.edu](mailto:gfay@umassd.edu)

Cate O'Keefe  
Adjunct Professor, School for Marine Science & Technology  
Marine Science and Policy Analyst, Mass. Division of Marine Fisheries  
SMAST East 314; (617)-626-1512; [Catherine.O'Keefe@state.ma.us](mailto:Catherine.O'Keefe@state.ma.us)

**Class Location:** SMAST East, New Bedford. Room 102  
**Class Time:** Friday 9:30-12:00  
**Office Hours:** By appointment

**Course Description:**

Practice and development of skills for communicating scientific research to a diverse set of audiences is important for applications to fisheries management and policy. This course is for students in the sciences and will focus 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, 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 and a hard copy submitted in class.
2. Two class presentations (20%): for a scientific meeting, and to an audience of fishery managers.
3. Op-ed Magazine article on research topic (10%)
4. Group presentation (10%): presentation of inter-disciplinary research to a public audience (New Bedford Science Café).
5. Participation in class discussions and in-class activities (30% of course grade). Attendance and engagement in all sessions is the best way to understand topics and assignments. Absence from class and labs 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. No academic dishonesty, including plagiarism, will be tolerated and the University Academic Integrity policy applies:  
<http://www.umassd.edu/studentaffairs/studenthandbook/academicregulationsandprocedures/>

### **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.compasssciomm.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>
- 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>
- 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/>
- 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.

**Course outline and tentative schedule (Subject to Change):**

<b>Date</b>	<b>Topic</b>	<b>Reading</b>	<b>Activity</b>	<b>Assignment</b>
<b>8-Sep</b>	Communicating science	Schmidt 2009	Communication discussion	Elevator speech
<b>15-Sep</b>	Distilling your message	Compass 2017	Message Boxing	Message Box
<b>22-Sep</b>	Scientific writing	McBride 2009; WikiHow	Titles and abstracts; Jargon terms	Abstract
<b>29-Sep</b>	Visualizing information	Tufte 1990	**SMAST Ribbon Cutting Ceremony	Infographics
<b>6-Oct</b>	Scientific presentations	Gosling & Noordam 2006	Pecha Kucha	Science speed presentation
<b>13-Oct</b>	Student Science Presentations		Retention exercise; answering questions	Management Relevance
<b>20-Oct</b>	Fishery management process and Best Available Science	Sullivan et al. 2006	Relevance of research	Management Presentation
<b>27-Oct</b>	Student Management Presentations		Discussion/Student critique	Policy brief
<b>3-Nov</b>	No Class			
<b>10-Nov</b>	Presenting science to public and industry	Clark, 2013	Story telling; Social media	Op-ed 1 <sup>st</sup> draft
<b>17-Nov</b>	Interdisciplinary communications	Winowiecki et al. 2011	Discussion/Group work	Op-ed student edits
<b>24-Nov</b>	THANKSGIVING			
<b>1-Dec</b>	Public presentation		Practice public presentation	Op-Ed 2 <sup>nd</sup> draft
<b>8-Dec Café TBD</b>	Group Presentation – Science Café		Evaluations/Course critique	

**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/>