Scientific Communication – Fall 2016

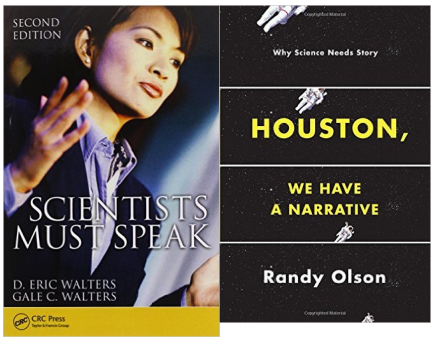
BIOL 701/EVRN 720 (Topics in: Scientific Communication), 3 credits
Wednesdays 6-9 PM, 3012 Haworth Hall
Instructor: Dr. Amy Burgin, 041 Higuchi Hall, burginam@ku.edu; Office hours by appt.

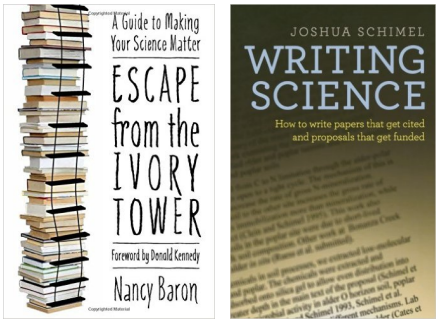
Communication is a vital part of a scientific career, but is rarely examined from the first principles of what constitutes "effective" or "good" communication strategies. Through studying communication for the art that it is, you will improve your own reading, writing and speaking skills. This course begins with an examination of scientific narrative, a critical foundation for any mode of communication. We then apply the concept of narrative to scientific writing, message honing and speaking. This is not a "mechanics" course, nor is it a composition class. That is, I will not provide students with copious iterative feedback on their own writing. Instead, our focus will be on defining the story in a dataset and clearly articulating that story using a variety of communication modes and audience perspectives. This class demands a substantial amount of reading and engagement; however, the products of this class are geared at your own research. Thus, the writing and speaking exercises will prepare you to deliver the eventual products of your own research. The class does not have prerequisites, but students should have an independent project (e.g., Honors project or graduate project) to act as the focus of their writing and speaking assignments.

Overarching Course Objective: To improve your reading, writing and speaking skills by analyzing what constitutes good and subpar examples in each area.

Additional Learning Objectives:

- Understanding of the distinction between "storytelling" from a fictional standpoint, in contrast to the role of narrative in communicating science.
- Increased comfort with and understanding of how to read primary literature.
- Increased understanding of the mechanisms of scientific publication.
- Increased self-knowledge about areas to improve in your own writing practice.
- Increased comfort and confidence in how to deliver an oral presentation.
- Ability to hone a message for multiple audiences.
- Providing constructive feedback and critical analysis for other scientists.
- Increased understanding of the appropriate use of social media for highlighting and creating awareness of science.





Required Texts:
Reading, reflection and discussion are the cornerstones of this class. We meet once/week for a 3-hour block, which will primarily be spent discussing the assigned reading. Thus, you should come well prepared having read and reflected on the assignments well in advance of the class. You will get more out of this class if you give yourself ample time to read and digest the books prior to discussions. We will read four books (shown at right) for this class. All are available on Amazon (in hard copy or Kindle editions) for $20-$25 each.

Note that weekly discussion leaders will be filled in after the first week of class.

Week/Date	Theme	Reading Assignment	Discussion Topics/*Leaders*	Written Assignment
1 (8/24/16)	Read, Write, Talk	In Class – SciComm and Society – Druschke[1]	Objectives *Burgin*	None
2 (8/31/16)	Building Narrative	Olson, Section 1 and 2 (pp.1-66) – Brussard[2]	Why Science needs a Story *Aleah*	
3 (9/7/16)	Building Narrative	Olson, Section 3 (pp. 67-174)	Developing Narrative *James F.*	1. Narrative Tools
4 (9/14/16)	Building Narrative	Olson, Section 4 (pp. 175-232) Watch video[#]	Narrative Training *Camille*	
5 (9/21/16)	Reading/ Writing	**Read 4 Papers**[3-6] Schimel Ch 1-5 (3-49)	4 Papers = Ex. 3.1, 4.1, 5.1 *Justin*	Your project = Ex. 2.2. 3.2, 4.2, 5.2
6 (9/28/16)	Reading/ Writing	Schimel Ch. 6-9 (pp. 50-94)	4 Papers = Ex. 6.1, 7.1, 8.1 *Adam*	Your project = Ex. 6.2, 7.2, 8.2, 9.2
7 (10/5/16)	Reading/ Writing	Schimel Ch. 10 – 13 (pp. 95-132)	4 Papers = Ex. 10.1, 11.1, 12.1, 13.1 *Catie*	Your project = Ex. 10.2, 11.2, 12.2, 13.2
8 (10/12/16)	Reading/ Writing	Schimel Ch. 14-17 (pp. 133-179)	4 Papers = Ex.14.1. 15.1 *Sirwan*	Your Project = Ex. 14.2, 15.2, 16.1, 17.1
9 (10/19/16)	Hone a message	Baron Ch. 1-5 (pp. 1-78)	Journalists *Catie*	2. Writing Reflection
10 (10/26/16)	Hone a message	Baron Ch. 6-7, 13 Dean Ch. 13-14	Policy Makers *James F.*	
11 (11/2/16)	Hone a message	Baron Ch. 8-12 (pp. 103-182)	Interviews and Messages *Justin*	
12 (11/9/16)	Deliver a good talk	Walters & Walters (Part 1, pp. 1-66)	Preparation *Sirwan*	3. Message Box
13 (11/16/16)	Deliver a good talk	Walters & Walters (Part 2, 67-103)	Delivery *Camille*	
14 (11/30/16)	Deliver a good talk	Walters & Walters (Part 3,105-130)	Situations *Aleah*	
15 (12/7/16)	Messaging and Social Media	Science and Social Media: read papers[7-10]	Twitter, Blogs, Scientific Networks *Adam*	
16 (12/14/16)				4. Presentations and Peer Reviews

[#]*https://www.youtube.com/watch?v=BfnxfNJRk7g&feature=youtu.be*
[1]Druschke and McGreavy. 2016. Why rhetoric matters for ecology. *Frontiers in Ecology and the Environment* 14(1): 46-52.
[2] Brussard and Tull. 2007. Conservation Biology and Four Types of Advocacy. *Conservation Biology* 21: 21-24.
[3]Watson and Crick. 1953. A Structure for Deoxyribose Nucleic Acid. *Nature* 4356: 737-734.
[4]Botezelli et al. 2016. Strength training prevents Hyperinsulinemia, Insulin Resistance and Inflammation Independent of Weight Loss in Fructose Fed Animals. *Scientific Reports* DOI 10.1038/srep31106.
[5]Groffman et al. 2014. Ecological Homogenization of the Urban USA *Frontiers in Ecology & the Environment* 12(1): 74-81.
[6]McNicol and Silver. 2015. Non-linear response of carbon dioxide and methane emissions to oxygen availability in a drained histosol. *Biogeochemistry* 123: 299-306.
[7]Darling et al. 2013. The role of Twitter in the life cycle of a scientific publication. *Ideas in Ecology and Evolution* 6: 32-43.
[8]Parsons et al. 2013. How Twitter literacy can benefit conservation scientists. *Conservation Biology*.
[9]Hall, N. 2014. The Kardashian index: a measure of discrepant social media profile for scientists. *Genome Biology* 15: 424.
[10]Van Noorden, R. 2014. Scientists and the Social Network. *Nature* 512: 126-129.

Reading Assignments and Participation: The assigned readings are the focus of in-class discussion, which is the bulk of the course grade. I will not lecture in this class, but instead will expect students to come well prepared to class having read and reflected on the assigned material. Participation in discussions is 30% of the class grade. Participation will be evaluated based on engagement, preparation and leadership. Classes will be divided into two 85-minute blocks with a 10-minute break between them. Students will be assigned as a discussion leader on a given day (or days, depending on class size). On days when no one is assigned, Dr. Burgin will lead the discussion. Grades will be weighted so that your general attendance and participation in discussion is 20% and your leadership on your assigned day(s) is 10% (totaling 30%).

Graded Assignments: The remaining 70% of the class grade will be based on five assignments: 1) Narrative Tools (6%), 2) Writing Reflection (24%), 3) the Message Box for multiple audiences (4%), 4) Oral Presentation (16%) and Peer Review (10%), and 5) Critique of a Scientific Seminar (10%). For the Writing Reflection, you will be completing a series of exercises associated with Schimel's text focused around crafting a short story (~800 words) centered on your research project. At the end of this section, you will compile the exercises and reflect on how they improved you short story. Oral presentations will be given during Finals week (at the time slot associated with our class final) and will be a 15-minute presentation also focused on the same story, but conveyed via spoken communication. The Seminar Critique will not have a specific due date, but requires you to attend a scientific seminar on campus and complete a reflection/critique of it.

More specific instructions for each of these assignments, as well as grading rubrics, will be distributed in subsequent class meetings. Brief overviews of the assignments are below:

1. **Narrative Tools (6%):** Use your research project material to complete the word, sentence and paragraph templates discussed in Chapters 5-8 to create a narrative for the project on which your writing will focus for this term. See Appendix 1 for additional assistance.
2. **Writing Reflection (24% of grade):** The goal of this is to create material you can use in refining any writing projects you're currently working on related to your independent research. Thus, your independent research project will be the source of material for completing a series of writing exercises associated in reading our second book by Dr. Schimel (*Writing Science*). During weeks 5-8, you'll complete a series of weekly writing assignments guiding you through the creation of a "short story" about your research project. These will be due (in hard copy,

during class) in class each week, but will only be checked for completion (no grade issued during the weekly hand ins). On week 9, you'll write a reflection piece describing how the exercises altered your writing and what you learned from the exercises. The final grade (worth 24% of your class grade) will reflect the work you put into the exercises and the depth and completeness of your reflection on the exercise. This is functionally the mid-term exam for the class.

3. **Message Box for Multiple Audiences (4%):** For this assignment, you'll use the writing you've been refining in assignment #1, and refine the message of your narrative to address different audiences. You'll complete an exercise called a "message box" for refining your message for an audience of scientists, students, journalists, and next-door neighbors. Due in class on Week 12.
4. **Oral Presentation (16%) and Peer Review (10%):** This is the "final" for the class. During finals week, you'll present (in class) a 15-minute oral presentation on your independent research project, again drawing on the principles we've discussed throughout the class. You'll also be assigned to do a peer review of one of your classmates. In the peer review, you'll provide constructive criticism (~1 pg), which will be shared with him/her (anonymously). Presentations will be given during assigned "final" timeslot. Peer reviews will be due within 24 hours of the presentations.
5. **Critique of a Scientific Seminar (10%):** This assignment is straightforward – attend a scientific seminar and critique it applying the principles we've discussed in class. This assignment can be completed at any point during the class, but must be turned in no later than week 14. I will grade these before the final so you can use the feedback to craft your Peer Review (assignment #5). You'll write a 1-pg summary and critique of the seminar.

Grading Scale: A standard grading scale will be used as a fraction of overall points earned: 90% = A; 80% = B; 70% = C; 60% = D; <50% = F (+ or – will be determined based on grade distributions). Assignments turned in one day late will receive a 10% penalty; two days late will result in a 25% penalty. Assignments will not be accepted if turned in >2 days late.

Classroom Attendance and Behavior: Throughout the semester, please be courteous to all of your fellow students and to me so we can create a positive learning environment. All cell phones should be turned off before entering the classroom and should not be used during class. If you repeatedly use a cell phone during class, I may ask you to leave the classroom. If you choose not to attend class on any day, then you accept the responsibility to learn the material on your own. If you have a question during the class period, please do not hesitate to ask by politely interrupting lecture or raising your hand.

Feedback and Course Evaluation: I will do my best to create a positive learning environment. However, learning styles differ among students, so I may do some things that are not optimal for you. If this occurs, you can let me know through email, during office hours, or via email. Because I need to keep the interests and abilities of all students in mind, I cannot promise that I will change the course. However, I do promise to listen and consider your suggestions.

Academic Misconduct: Your participation in this course means that you agree to abide by the university academic misconduct policy. This policy holds in part that the work you complete for credit is entirely your own. Any student caught cheating will receive a final grade of F and be brought up on charges with the University Senate. Please visit the online student handbook for a complete list of student rights and responsibilities (http://www.humanresources.ku.edu/policies_procedures/handbooks/student/). Above those points outlined in the student handbook, we also consider the following academic misconduct:

1. Submitting assignments from a group activity without participating in the activity.
2. Having any other person (whether or not enrolled in the class) take any assignment or exam for another student.
3. Failing to write their papers in their own words using proper citations.
4. Failing to follow other rules outlined by the instructor throughout the semester.
5. Posting inappropriate, offensive, or harassing comments to the course discussion board.

Disabilities: The Academic Achievement and Access Center (AAAC) coordinates academic accommodations and services for all eligible KU students with disabilities. If you have a disability for which you wish to request accommodations and have not contacted the AAAC, please do so as soon as possible. They are located in 22 Strong Hall and can be reached at 785-864-4064 (V/TTY). Information about their services can be found at http://www.disability.ku.edu. Please contact me privately in regard to your needs in this course.

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Campus emergencies and weather delays: Campus emergencies, including weather delays, are announced on the University of Kansas Lawrence Campus Alerts webpage (http://alerts.ku.edu/) and communicated to cellphones, email, text via KU Alert (to sign up, please see http://www.alerts.ku.edu/signup).

Commercial Note-Taking: Pursuant to the University of Kansas' Policy on Commercial Note-Taking Ventures, commercial note-taking is not permitted in BIOL 701/EVRN 720. Lecture notes and course materials may be taken for personal use, for the purpose of mastering the course material, and may not be sold to any person or entity in any form. Any student engaged in or contributing to the commercial exchange of notes or course materials will be subject to discipline, including academic misconduct charges, in accordance with University policy. **Please note**: note-taking provided by a student volunteer for a student with a disability, as a reasonable accommodation under the ADA, is **not the same** as commercial note-taking and is **not** covered under this policy.

This syllabus is subject to change without prior notice.