

MMC 6409
Seminar in Science/Health Communication

Fall 2016

Dr. Debbie Treise dtreise@jou.ufl.edu

Class hours: Monday, 4-6 periods, Weimer 1090

Office: 2012 Weimer **Telephone:** 392-6557 (office); (386) 418-8268 (home); (352) 339-1745 (cell)

Office hours: Mon 2, 3; Tues 2 period; Wed 2, 3, 4 periods, and by appointment
(Note: these office hours may change if university or college committees or grant work require my attendance; but you can always schedule some other time)

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last 2-3 weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at: <https://evaluations.ufl.edu/results>.

Academic Honesty: Academic honesty is important at the University of Florida. All students are expected to practice the University of Florida Honor Code: "We the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." For all work submitted for credit, including homework, in-class assignments and examinations, the following pledge is implied, "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Please see the plagiarism document in the Graduate Division, and be sure that you have signed it and it is on file (required, if you are in this college).

Course Description and Outcomes: This course is designed as a broad overview of the fields of and theories used to investigate and understand science and health communication and communication's effect on public understanding. The class will be useful for you if you plan to: do research or teaching in the science, technology or health communication fields; if you are interested in policy development, or the role of communication in promoting public health; prepare for a career working in science communication or consulting to businesses in the government, science, health or technology fields; public information officer work in a research, health or technology organization, nonprofit, become a better consumer of health and science information (meaning to assess the credibility, risks and benefits of that information),etc. For any of

these purposes, it is vitally important that you understand: what's happening in the field and how the gap between access to information and informed decision making is widening as information consumers are struggling to understand, evaluate and find credible information; and how it is exacerbating the disparities among some groups. So you must understand the barriers and opportunities.

Over the next few weeks we'll be reading the literature in this rather broad and unique field so that you will understand:

- How science and health are communicated through the gamut of traditional and emerging media, and how that communication impacts knowledge, attitudes and behavior
- The implications of messages conveyed through traditional, Internet and social media. In other words, how technology and social media have changed the face of science and health communication
- The challenges to communicating the uncertainty of science and health
- The "players" in the field: The nexus among scientists/health researchers, journalists, public information officers (in other words, science communicators) and audiences and the communication among them
- The "problem" of science and health literacy and how to engage various audiences
- The most common theories used to comprehend the issues in science and health communication
- Risk issues in communicating science and health
- The impact of science/health communication on policy; politics of science
- The issues that make science and health news today
- Controversies/ethical considerations in science/health
- Framing of science and health issues; framing as a method of researching audience meaning of text and framing theory
- How to think strategically about the use of communication
- TV/film's influence on health and science
- The future for science/health communication

Many of the issues we will be discussing and debating won't have clear-cut answers or solutions, so class discussion is very important to raise the issues.

Because the list of possible important topics to cover in this class is endless, choices needed to be made to provide an overview of the field. Therefore, topics such as interpersonal communication in healthcare, the health care and insurance system, etc., that could be classes in themselves, will not be addressed in depth.

THE SCIENCE NEWS CYCLE

JORGE CHAM © 2009



What this course is not: It isn't a "how-to" write a science or health story. It's a critical look at the field, the people involved and the impact of science communication efforts. For a how-to, I highly recommend "A Field Guide for Science Writers: The Official Guide of the National Association of Science Writers," by Deborah Blum, Mary Knudson and Robin Marantz Henig as a starting point. Additionally, when looking at health communication we will not be discussing at length the health care systems, how the US pays for health care, etc., as these areas alone could be the focus of one entire semester.

Format: This course is designed around a lecture/discussion format – meaning it’s a discussion-intensive class. Additionally, the course uses a number of learning formats in addition to discussions: student presentations, interactive group exercises a debate, scholarly articles, film, videos, websites and guest speakers. And, since it’s a graduate seminar, it is expected that you will have done a careful, critical reading of all assigned articles (and any new science or health developments that occur during the semester) for each week and will be ready to participate in class discussion; in other words, class discussions are the core of the course. The design of the course is so that you will explore the issues. So, I’ll come prepared for class, so you should too.

For each week, the most relevant readings have been assigned, and many are pretty intellectually challenging. However, I encourage you to step outside of these readings and acquaint yourself with the rapidly growing body of literature on science and health communication. There are wonderful dedicated journals, such as *Public Understanding of Science* (acronym PUS, lovely, eh?), *Science Communication*, *Social Studies of Science, Technology and Human Values*. Also consult the *Journal of Communication*, *Journal of Health Communication: International Perspectives*, *Health Communication*, *Journalism & Mass Communication Quarterly* which are other sources for science and health communication studies. Another valuable resource is your classmates, and hopefully, you’ll be developing supportive relationships as we work through the issues in the field.

Note: If you see an article, TV show, blog, website, etc. that you think would be of interest to other students in class, I encourage you to share it with us!

Class Guidelines

1-Late assignments. I don’t take them. No make ups.

2-Participation. The goal for the weekly readings is to read the material, digest it, synthesizing it, and then add your own independent thinking about the assigned topic. Participation is part of your grade, but it is needed, so please participate regularly.

3-Participation etiquette. Please be considerate of the ideas of others, and treat everyone in class with kindness, tolerance and respect, regardless of how vehemently you disagree with their views.

4-Attendance. If you must miss, one excused absence is allowed if you let me know well before class begins. But since this is a graduate seminar that meets only once a week, you are expected to attend each week.

5-Because I have administrative duties, and am doing grant work with faculty in the College of Medicine, from time to time I may need to cancel class.

6-Cellphones and laptops. All cellphones and other electronic devices need to be turned off during class. Unfortunately that goes for laptops too. I want to remove the temptation to check email, post on Facebook or other fun activities not related to this class. Students who text, email, check Twitter, Facebook, LinkedIn, etc. during class will be asked to leave and be considered absent for that day.

Final Research Paper Due December 9 at noon (hard copy with all previously graded marked up sections

The final paper will concern the science or health topic of your choice. You will learn the theory and method of framing and framing analysis to complete this study. Early in the semester you will be asked to choose a science or health topic that has received substantial media coverage (controversial and high profile are your best bets), that has **not** been used previously as the basis of a framing analysis study. You will need to select an appropriate sampling frame and obtain those articles for analysis. This is a wonderful opportunity to complete a sole- or co-authored study for submission to a conference and subsequent publication (previous semesters' students have been very successful with this). **We will talk about whether you want to use a qualitative or quantitative approach.**

We will have various due dates for parts of the paper so that:

- I can give you feedback along the way
- The research paper won't be so overwhelming
- It will ensure a better end product.

The paper can be completed either by yourself (i.e., if you want it to be used as a springboard for your thesis or dissertation) or with one or two others in class. This is your choice. But a team of three is the maximum number in a team.

The paper will consist of five sections:

1. introduction (or rationale for why this is an important topic to study)
2. literature review (all relevant literature that informs your topic)
3. method
4. results
5. discussion, weaknesses and needed future research

We'll discuss each of these as we go along. If you are completely unfamiliar with conducting a research study, then you should probably pair up with someone else in class. But don't forget, we'll be discussing each of the sections at some length. So don't worry!

Examples of framing paper topics conducted in this class:

Shark "finning"

Fracking gas drilling

Synthetic meat

Medical marijuana

Fibromyalgia

Japanese earthquake nuclear accident

Florida springs water debate

GMOs

You will be making a very short (5 minutes maximum), **informal** presentation on your final paper on the last day of class – more like a conversation with friends. This is designed to give class members a short background on your topic and what you found, so

focus on the most important, interesting and unexpected findings. **No** formal Powerpoint slides, please.

Weekly Readings/Discussion Questions/Discussion Leader

Each week you must identify at least two important questions or discussion points synthesized **across** (not from just one assigned reading, and not two from each – only two thoughtful questions per week) the readings that will serve as class discussion items. These questions might be those you wouldn't want your classmates to miss, those that interest you or those about which you would like to hear the thoughts of your classmates. A good discussion question, in other words, might ask if there are common themes across readings, are there differences, those that clarify or add to the discussion, or thoughtful critiques of the readings. Please don't include questions that are not relevant to the readings for the week.

Each week one of you will be assigned as the **discussion leader**. While each of you will be submitting questions each week, only the assigned discussion leader will be charged with channeling the discussion and making sure that everyone participates. (NOTE: on the week you are the discussion leader, you do not need to submit questions)

Please email your questions to **the discussion leader for that week** and **me** by **noon on the Saturday before class** so that the discussion leader will have enough time to put the questions together and prepare for class.

The discussion leader should, by synthesizing or listing the questions submitted, facilitate open discussion/debate and further questions. It is up to your team as to how you do that – through slides, handouts, exercises, quizzes, videos. etc. – in other words, be creative!! Your choice. BUT, to ensure everyone has done the assigned readings for the day, it is your job as the discussion leader to ask open-ended questions based on the readings. When you throw out a question, you may need to ask specific people to answer them, so everyone has to be ready each week! Be prepared with at least 5-8 questions.

Controversies in Science Debates

“Public understanding and support of science and technology have never been more important, but also never more tenuous. Today they are embedded in an increasingly politicized environment where ethical, legal, and social implications are emerging at a rate that seems to be outpacing society's capacity to make sense of the science. The science of science communication will be essential to help guide new and more effective efforts at engaging productively across the science/society interface. “ (Science, 2012)

It is important to learn the relevant theories and assumptions of communicating science and health. But that's not enough. To participate on an intellectual level and engage the public in debates about science/health, science/health communication, technology, policy, and the future, you must be able to understand the issues involved in science, health and technology. You know that science/health and technology are part of modern society, but sometimes values, attitudes and beliefs collide on some issues. So in the **November 7th** class you'll be debating a few controversial topics and issues within the broad topic area of science/health communication that you may encounter as a practitioner or researcher. These are important and complex areas about which many of you will be writing,

researching and communicating. There are special challenges here for a science/health communicator.

1-First you will select a topic (listed on the next page), and teams will be assembled.

Each side of the debate will have a minimum of two members for each topic. You will decide as a group which side members will take. Your team will also have a moderator who will serve as timekeeper and rule enforcer.

2-Your team will then obtain background information, pro or con (depending on your side). It's important here that even if you disagree with the side you have been assigned, you must argue for that side. This is an important exercise for you to learn the opposing perspectives on some issues that have ideological, ethical and other factors intervening.

So be sure to know all of the stakeholders here and their perspectives and concerns.

3-Each side will have a total of 5 minutes to present its opening arguments/evidence/background to the class and to the opposing side about your assigned area and pro or con side (however you choose to present that information). **DO NOT SHARE YOUR INFORMATION WITH THE OPPOSING SIDE AHEAD OF TIME!**

4-Each side will then be given the opportunity to ask questions to the opposing side for 5 minutes. Please be sure that each member has at least 2 questions to ask the opposing side. **DO NOT SHARE THESE QUESTIONS WITH THE OPPOSING SIDE AHEAD OF TIME!.**

5-The final 5 minutes will be devoted to questions from the class.

Suggested topics (you may pose others as well):

1. Should marijuana be legalized nationally for medicinal purposes?
2. Should e-cigarettes be permitted? Regulated more or less?
3. Should cervical cancer vaccine (HPV) for school children be compulsory?
4. Is there a link between childhood vaccination and autism?
5. Is it safe to consume genetically engineered foods?
6. Should fracking be allowed to continue and grow?
7. Fossil fuels and oil use in farming – contributing to climate change?
8. Should geoengineering be pursued?
9. Should the morning after pill be made available to girls at age 12?
10. Should physician assisted suicide (assisted dying) be allowed for end of life care?
11. End of life care – should care, medicines, treatment be rationed for those who are elderly?
12. Should antibiotics be used in livestock production?

Grading Policies

Class Attendance/Participation/Presentation/Weekly Questions/Leader	30%
Special Debate presentations	25%
Final paper sections and deadlines	15%
Final Paper	30%

Although we are holding individual meetings on November 21th please complete your online course evaluations on or near that day. It is important that you complete these

because course evaluations are taken seriously at the University of Florida, and your opinions matter to me to make the class useful and relevant.

The evaluations are confidential. I will only see completed results and will be unable to trace ratings or comments to any student. In addition, I will not have access to the evaluations until after final grades have been recorded.

SEMINAR SCHEDULE

(don't let this reading list intimidate you, many of the readings are very short)

Week 1 - August 22: Introduction, syllabus, assignments

Readings:

Fischhoff, B. (2012). The sciences of science communication. *Proceedings of the National Academy of Sciences*.

http://www.pnas.org/content/110/Supplement_3/14033.short

Week 2 – August 29: Science Communication: Scientists and Communicators, Scientists involvement in policy

(please send me your questions this week)

Readings:

Nisbet, M and Scheufele, D. (2012). Opinion: Scientists Intuitive Failures. *The Scientist*, July 23. [http://www.the-](http://www.the-scientist.com/?articles.view/articleNo/32384/title/Opinion--Scientists--Intuitive-Failures/)

[scientist.com/?articles.view/articleNo/32384/title/Opinion--Scientists--Intuitive-Failures/](http://www.the-scientist.com/?articles.view/articleNo/32384/title/Opinion--Scientists--Intuitive-Failures/)

Halliday, E. (2009). Knowledge is power: In a world shaped by science, what obligation do scientists have to the public? *Ethics in Science and Environmental Politics*,

April, 1-4. <http://www.int-res.com/articles/esep2009/9/journalism/e009pp5.pdf>

Fahy, D. and Nisbet, M. (2011). The science journalist online: Shifting roles and emerging practices. *Journalism*, 12(7), 778-793..

<http://jou.sagepub.com/content/12/7/778.full.pdf+html>

Dudo, A., & Besley, J. (2016). Scientists' prioritization of communication objectives for public engagement. *PLOS ONE*, 11(2).

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4767388/>

Nisbet, M. and Markowitz, E. (2015). Expertise in an age of polarization: Evaluating

Scientists' political awareness and communication behaviors. *Annals, AAPSS*, 658

[http://climateshiftproject.org/wp-](http://climateshiftproject.org/wp-content/uploads/2015/02/NisbetMarkowitz_ExpertiseAgePolarization_ANNALS.pdf)

[content/uploads/2015/02/NisbetMarkowitz_ExpertiseAgePolarization_ANNALS.pdf](http://climateshiftproject.org/wp-content/uploads/2015/02/NisbetMarkowitz_ExpertiseAgePolarization_ANNALS.pdf)

Week 3 – Sept 5: LABOR DAY - HOLIDAY

Week 4 - Sept 12: Health Communication and Theories; Research Paper Sections

Discussion leader

Readings:

Committee on Assuring the Health of the Public in the 21st Century. “The Future of the Public’s Health in the 21st Century,” Chapter 7, pages 307-349. (the health side) http://books.nap.edu/openbook.php?record_id=10548&page=307

National Cancer Institute. Making health communications programs work

<http://www.cancer.gov/publications/health-communication/pink-book.pdf> (read

introductory pages, 2-9, and the information on a few of the most common health communication theories in Appendix B: Social marketing, Stages of Change, Health Belief Model, Social Cognitive and Diffusion. Framing and Persuasion theories will be discussed weeks 7 and 8.

Weberling McKeever, B. (2014). The status of health communication: Education and employment outlook for a growing field. *Journal of Health Communication: International Perspectives*, 19:12, 1408-1423.

<http://www.tandfonline.com/doi/full/10.1080/10810730.2014.904024#abstract>

RESEARCH TOPIC IDEA BE READY TO DISCUSS IN CLASS TODAY

Week 5 - Sept 19: What Makes Science/Health News

Discussion leader

Readings:

Fitzpatrick, Susan (2000), "What Makes Science Newsworthy?" *NASW Newsletter*.

<http://www.jsmf.org/about/s/1999-what-makes-science-newsworthy.pdf>

(old, but still very relevant)

Rosen, C., Guenther, L., & Froehlich, K. (2016). The question of newsworthiness: A cross-comparison among science journalists' selection criteria in Argentina, France and Germany. *Science Communication*, 38(3), 328-355.

<http://scx.sagepub.com/content/38/3/328.full.pdf+html>

Journal embargo policies, considerations and debate on the embargo policy (all very short)

Science: http://www.sciencemag.org/site/feature/contribinfo/faq/#embargo_faq

Nature: <http://www.nature.com/nature/authors/policy/embargo.html>

Controversy http://dennismeredith.com/understand-embargoes-pro-and-con_367.html

<http://scienceblogs.com/notrocketscience/2009/07/04/does-science-journalism-falter-or-flourish-under-embargo/>

<https://figureoneblog.wordpress.com/2014/02/24/have-your-embargo-and-break-it-too/>

Week 6 – Sept 26: Health and Science Literacy, Public Engagement, Media influence on knowledge, attitudes and behaviors

Discussion leader

Readings:

Pleasant, A. (2015). Advancing health literacy measurement: A pathway to better health and system performance. *Journal of Health Communication: International Perspectives*, 19:12, 1481-1496.

<http://www.tandfonline.com/doi/pdf/10.1080/10810730.2014.954083>

Haywood, B. and Besley, J. (2013). Education, outreach and inclusive engagement: Towards integrated indicators of successful program outcomes in participatory science. *Public Understanding of Science*.

<http://pus.sagepub.com/content/23/1/92.long>

Bonney, R., Phillips, T., Ballard, H., & Enck, J. (2016). Can citizen science enhance public understanding of science? *Public Understanding of Science*, 25(1), 2-16.

<http://pus.sagepub.com/content/25/1/2.full.pdf+html>

Movius, L., Cody, M., Huang, G. Berkowitz, M., & Morgan, S. (2007). Motivating television viewers to become organ donors. *Cases in Public Health Communication & Marketing*. http://www.casesjournal.org/volume1/peer-reviewed/cases_1_08.cfm

“Gattica” (will be watching 25 minutes of the movie for discussion)

In class: science and health literacy tests (just for fun)

Week 7 – Oct 3: Framing and Persuasion (6th period: Dr. Weigold guest speaker)

Readings: First three readings this week are from an Ebook in Library West

<http://web.ebscohost.com/ehost/detail?sid=5d2a2f17-b4db-4094-ae81-88214ba5c297%40sessionmgr15&vid=1&hid=12&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=nlebk&AN=63058>

Hertog, J., and McLeod, D. (2001). “A Multiperspectival Approach to Framing Analysis: A Field Guide,” in S. Reese, O. Gandy and A. Grant (Eds.), *Framing Public Life: Perspectives on Media and Our Understanding of the Social World*. p. 139-161. New Jersey: Erlbaum.

Miller, M., and Riechert, B. (2001). “The Spiral of Opportunity and Frame Resonance: Mapping the Issue Cycle in News and Public Discourse,” in S. Reese, O. Gandy and A. Grant (Eds.), *Framing Public Life: Perspectives on Media and Our Understanding of the Social World*. p. 107-121. New Jersey: Erlbaum.

Tankard, J. (2001). “The empirical approach to the study of media framing,” in S. Reese, O. Gandy and A. Grant (Eds.), *Framing Public Life: Perspectives on Media and Our Understanding of the Social World*. p. 95-106. New Jersey: Erlbaum.

Bolsen, T., Druckman, J. and Lomax Cook, F. (2014). How frames can undermine support for scientific adaptations: Politicization and status-quo bias. *Public Opinion Quarterly*, 78(1), 1-26.

<http://poq.oxfordjournals.org/content/early/2014/02/03/poq.nft044.full.pdf+html>

Week 8 - Oct 10: Framing Examples (use these articles to see how the papers are set up, the research questions they ask, etc. **All but the last of the articles cited have been written by students enrolled in this class**) **Discussion leader**

Readings:

Walsh-Childers, K. & Braddock, J. (2013). Competing with the conventional wisdom: Newspaper framing of medical overtreatment. *Health Communication*

<http://www.tandfonline.com/doi/abs/10.1080/10410236.2012.730173#.U2J2vk1OXuo>

Goodwin, J. & Shoulders, C. (2013). The future of meat: A qualitative analysis of cultured meat media coverage. *Meat Science*, 95, 445-450.

<http://www.sciencedirect.com/science/article/pii/S0309174013002210#>

Kim, J. & Bie, B. (2013). A dangerous neighbor: The news frames of the radiation effects from the Fukushima Nuclear Accident, 15(3), 180-198.

<http://link.springer.com/article/10.1057%2Frm.2013.4>

Kim, S., Tanner, A., Foster, C. and Kim, S. (2014). Talking about health care: News framing of who is responsible for rising health care costs in the United States. *Journal of Health Communication: International Perspectives*, 20:2, 123-133. <http://www.tandfonline.com/doi/full/10.1080/10810730.2014.914604#.VZg3-03bK1s>

Stefanik-Sidener, K. (2013). Nature, nurture or that fast food hamburger: Media framing of diabetes in the *New York Times* from 2000 to 2010. *Health Communication*, 28(4), 351-358. <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=cba91ffd-42b7-4a26-8f39-a39e55e7005e%40sessionmgr105&vid=5&hid=107>

In-class framing exercise

INTRO AND LITERATURE REVIEW SECTION DUE IN CLASS (includes resulting research questions at end of lit review)

Week 9 - Oct 17: **INDIVIDUAL MEETINGS** (to discuss methods and coding sheet; have draft ready), no group class, **meet in my office**

Week 10 - Oct 24: **Risk Communication**

Discussion leader

Readings:

Fink, S. (Aug. 27, 2009). The deadly choices at Memorial, *Pro Publica* <http://www.propublica.org/article/the-deadly-choices-at-memorial-826>

McKenna, M. (Nov. 30, 2013). Imagining the post-antibiotics future.

<https://medium.com/@fernnews/imagining-the-post-antibiotics-future-892b57499e77>

Sack, K., Fink, S., Belluck, P. and Nossiter, A. (Dec 29, 2014). How ebola roared back. *New York Times*.

http://www.nytimes.com/2014/12/30/health/how-ebola-roared-back.html?_r=0

METHODS SECTION AND CODING SHEET DUE BY NOON, FRIDAY, OCTOBER 24

Week 11 – Oct 31: **Climate Change**

Please send question to me this week

Readings:

Sakellari, M. (2014). Cinematic climate change, a promising perspective on climate change communication. *Public Understanding of Science*,

<http://pus.sagepub.com/content/early/2014/05/30/0963662514537028.full.pdf+html>

Nisbet, E., Cooper, K., Ellithorpe, M. (2014). Ignorance or bias? Evaluating ideological and informational drivers of communication gaps about climate change. *Public Understanding of Science*, 24(3), 285-301.

<http://pus.sagepub.com/content/24/3/285.full.pdf+html>

Pearson, A., Schuldt, J. (2016). Bridging climate communication divides: Beyond the partisan gap. Commentary. *Science Communication*. 37(6), 805-812.

<http://scx.sagepub.com/content/early/2015/10/14/1075547015611131.full.pdf>

Hiles, S., Hinnant, A. (2014). Climate change in the newsroom: Journalists' evolving Standards of objectivity when covering global warming. *Science Communication*

<http://scx.sagepub.com/content/early/2014/05/19/1075547014534077.full.pdf>

Bruggemann, M. and Engesser, S. (2014). Between consensus and denial: Climate journalists as interpretive community. *Science Communication*, 36(4), 399-427.

<http://scx.sagepub.com/content/early/2014/05/20/1075547014533662.full.pdf+html>

Documentary: *Merchants of Doubt* (2010) – we will be watching in class

Week 12 – Nov 7:

Class presentations/Debates of Controversies in Science

ALL ARTICLES COLLECTED FOR ANALYSIS (note: articles are not given to me, they must be collected by this date so you can start your analysis)

Week 13 - Nov 14: Ethics

Discussion leader

Readings: (all very short)

Obasogie, (2009). Ten years later: Jesse Gelsinger's death and human subjects protection

<http://www.geneticsandsociety.org/article.php?id=4955>

Joelving, F. (2011). Financial transparency skin-deep at medical journals.

<http://www.reuters.com/article/2011/06/08/us-financial-transparency-idUSTRE7574ET20110608>

NPR. Dollars for Docs Please listen to *All Things Considered* "How to win doctors and influence prescriptions" on the page

<http://www.npr.org/series/130598927/dollars-for-docs-how-pharma-money-influences-physician-prescriptions>

Elliott, C. & Landa, S. (2010). "What's wrong with ghostwriting?" *Bioethics*, 24(6),

284-286. <http://onlinelibrary.wiley.com/doi/10.1111/j.1467->

[8519.2010.01828.x/full](http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8519.2010.01828.x/full)

NFL's concussion research:

http://www.nytimes.com/2016/03/25/sports/football/nfl-concussion-research-tobacco.html?_r=0

Week 14 – Nov 21: INDIVIDUAL MEETINGS; no group class

Week 15 – Nov 28: Presentations/Evaluations/Future of Science Comm/Wrap up none

RESULTS SECTION DUE IN CLASS

Week 16 – Dec 5: no class – get those papers done!

FINAL PAPERS DUE DECEMBER 9 AT NOON (hard copy in my office; must include all previous marked up drafts)