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**LMC 3412—Communicating Science and Technology to the Public**

**Course Prerequisite:** English 1102

**Course Description**

This course examines both the theoretical and practical issues involved in communicating scientific and/or technological material to a variety of non-expert audiences. During the Spring, 2012, students will focus on “Risk in the City: Factors that Affect the Perception and Communication of Risk in the City of Atlanta.”

Risk communication and risk perception have recently received extraordinary attention because of international terrorism, but concerns about risks involve the City of Atlanta as well — concerns about, for example, aircraft, air quality, biohazards, dead zones, environmental pollution, housing, food and water, infrastructure, medical services, natural disasters, public health, public safety, sex trafficking, tobacco, transportation.

Sandia National Labs’ Risk Perception Website explains that “our *perceptions* of risk have as much, if not more, of an influence on our decisions as the cold, hard facts.” Thus, rhetoric is central to understanding risk. Class members will consider the rhetoric of risk in four broad areas: individual risk, workplace risk, community risk, and environmental risk. Where? In the City of Atlanta.

According one model of risk, scientists typically look at *hazards* (actual dangers) associated with a situation, while members of the public more typically look at *risks* (perceptions of dangers). Class members will explore communication about risks and hazards, examining accessibility, design, efficacy, ethics, literacy, media, mode, narativity, and usability in appealing to non-expert audiences. Class members will engage in four kinds of activities:

* (1)  Reading about risk perception and engaging in class discussions about that reading
* (2)  Writing several short papers and one long paper
* (3)  Creating multimodal artifacts to educate non-expert audiences about various risks they encounter in the city of Atlanta
* (4)  Conducting usability testing to determine the effectiveness of the various artifacts

**Learning Outcomes**

**LMC outcomes addressed in LMC 3410**

* Communication skills: Gather, organize, and express information clearly and accurately, with sensitivity to will be able to do so both by using traditional media and by tapping the potential of new digital media.
* Textual/Visual Analysis: Read, analyze, and interpret not only cultural projects such as film, literature, art, and new media, but also scientific and technical documents.
* Interpretive Frameworks: Become familiar with a variety of social, political, and philosophical theories and be able to apply those theories to creative and scientific texts, as well as to their own cultural observations.

**Course-specific outcomes addressed in LMC 3410**

* Examine perceptions of risk in society, focusing on hazards and risks that are important to individuals, communities, workplaces, and natural environments in the City of Atlanta
* Assess/explain theories that explain risk perception and communication, with particular emphasis on the ways these models and theories work in various media
* Analyze/critique risk communication with special emphasis on issues such as accessibility, design, efficacy, ethics, literacy, media, mode, narativity, and usability
* Conduct investigations of perception and communication of selected risks in campus, community, or workplace groups; present research results to appropriate audiences
* Take an informed stance about the social responsibility of individuals and organizations in educating people about risks
* Create print and digital media presentations about risk and provide a rationale for decisions

**Required Texts**

* Sandman. 1987. “Risk Communication: Facing Public Outrage.” http://www.psandman.com/articles/facing.htm
* HOSTA. 2004. “Risk Perception.”
* Plough and Krimsky. 2008. “The emergence of risk communication studies: social and political context.”
* Rodrigues. 2006. “What is Risk Communication?”
* Weinstein. 1999. “What Does It Mean to Understand a Risk? Evaluating Risk Comprehension.”
* Slovic, Paul. 1987. “Perception of risk.”
* Bouyer et al., 2001. “Personality and Risk Perception.”
* Burns, 2007. Rick “Perception: A Review.”
* Goodwin & Dahlstrom. 2011. “Good Reasons for Trusting Climate Science Communication.”
* Mileti, Dennis S. and Lori Peek. 28 June 2000. The social psychology of public response to warnings of a nuclear power plant accident. Journal of Hazardous Materials. 75: 2-3, 181-194
* Scott & Gray, 2008. A Comparison of Tactile, Visual, and Auditory Warnings for Rear-End Collision Prevention in Simulated Driving
* Grabill & Simmons. 1998. Toward a Critical Rhetoric of Risk Communication.
* Schwartzman et al., 2011. Rhetoric and Risk.
* Gopen and Swan. 1990. The Science of Scientific Writing
* Wogalter, Jarrard & Simpson, 1994. Influence of Warning Label Signal Words on Perceived Hazard Level.
* Plain Language: http://www.centerforplainlanguage.org/ and <http://www.plainlanguage.gov/>
* Connelly & Knuth. 1998. “Evaluating Risk Communication: Examining Target Audience Perceptions About Four Presentation Formats for Fish Consumption Health Advisory Information.”
* Strawbridge. 1986. “The Influence of Position, Highlighting, and Imbedding on Warning Effectiveness.”
* Ancker et al. 2008. “Design Features of Graphs in Health Risk Communication: A Systematic Review.”
* Kostelnisk. 2008. “The Visual Rhetoric of Data Displays: The Conundrum of Clarity.”
* Lipkus & Hollands.1999. “The Visual Communication of Risk.”
* Edwards, Elwyn, and Mulley. 2002. “Explaining risks: turning numerical data into meaningful pictures.”
* Peters. 2008. “Numeracy and the Perception and Communication of Risk.”
* Kurz-Milcke et al. 2008. “Transparency in Risk Communication: Graphical and Analog Tools.”
* Reynolds & Seege. 2005. “Crisis and emergency risk communication as an integrative model.” http://www.comm.riskcenter.umd.edu/spotlight/spring06.html
* U.S. Department of Health and Human Services. 2002. *Communicating in a Crisis: Risk Communication Guidelines for Public Officials.*
* Williamson & Weyman. 2005. “Review of the Public Perception of Risk, and Stakeholder Engagement.”
* Albers. 2011. “Usability of Complex Information Systems.”
* Kain, de Jong, & Smith, 2011. “Information Usability Testing as Audience and Context Analysis for Risk Communication.”
* Redish. 2007. “Expanding Usability Testing to Evaluate Complex Systems.”
* Usability.gov (home, basics, methods, templates, resources, articles/discussion, guidelines)
* Bevan & Spinhof. 2007. “Are guidelines and standards for web usability comprehensive?”
* Petrie & Kheir. 2007. “The Relationship between Accessibility and Usability of Websites.”
* useit.com: Jakob Nielsen's Website

**Assignments and Grading**

* PROJECT #1 Blog Postings, Responses, and Analyses 20%
* PROJECT #2 Research Paper and Formal Presentation 25%
* PROJECT #3 Multimodal Artifacts 30%
* PROJECT #4 Website 15%
* Midterm Exam 5%
* Attendance, Participation, and Homework 5%

Specific requirements for assignments will be discussed in class. All assignments must be computer generated (no handwritten or typed documents). Keep a copy of all assignments you pass in. Sometimes you will be asked to also submit a DVD *and* a print document. Please use MSWord for your word processing.

Attending class is part of your professional responsibility. You’re expected to be in class when it is scheduled to meet. This class meets twice a week for 15 weeks, for a total of 30 class meetings. You receive an attendance grade, which is the actual percentage of the times you attend class, so if you miss no classes, you receive a 100% for attendance. In addition, this is what happens if you miss class:

* Regardless of your actual grades and regardless of the reasons for your absences, 4 absences (2 weeks or ~13% of the course) will lower your grade one letter grade (i.e., A-­‐ becomes B-­‐; B becomes C).
* Regardless of your actual grades and regardless of the reasons for your absences, 6 absences (3 weeks or ~20% of the course) will lower your grade two letter grades (i.e., B becomes a D; C becomes F).
* Regardless of your actual grades and regardless of the reasons for your absences, 8 absences (4 weeks or ~27% of the course) will result in automatic failure of the course.
* Institute‐approved absences (documented by the Registrar or Dean of Students) are not counted as absences. You are responsible for keeping track of your own absences. I take attendance; you can check with me anytime to ensure our records agree, but my attendance record is the official one.
* You are tardy if you arrive after I take attendance. Important to note: three tardies = one absence.  I urge you not to take self-­‐indulgent absences (e.g., not bothering to come to class, wanting to sleep in). I encourage you to plan your time so that you don’t disadvantage this class for other parts of your life (e.g., studying for an exam, participating in a sports event, going away for a long weekend). Academic work is important, so you don’t want to miss this class. Schedule jobs, study groups, team meetings, and other important commitments at some time this class doesn’t meet. Schedule job interviews so they do not conflict with this class.
* If you miss a scheduled oral presentation, you will receive a grade of 0 (that’s “zero”) for that presentation. In fact, if you miss any assignment, large or small, you receive a “0” for the grade. If you miss any exam, you will receive a grade of 0 (that’s “zero”) for that exam.
* As a professional courtesy, please call (404-­‐894-­‐1158 and leave a message) or send an email message if illness, an unexpected personal emergency, or business obligations prevent you from attending class or a team meeting (just as you would if you were going to miss work). Providing a reason is a profession courtesy, not an excuse. Regardless of the reason for your absence, you are responsible for information presented in classes you miss.
* Please check GA Tech’s position about class attendance: http://www.catalog.gatech.edu/rules/4b.php

**Accommodations**

Georgia Tech supports students through ADAPTS (Access Disabled Assistance Program for Tech Students). Any student who may require an accommodation for a documented disability should inform me as soon as possible or as soon as you become aware of your disability. Anyone who anticipates difficulties with the content or format of the course due to a documented disability should arrange a meeting so we can create a workable plan for your success in this course. ADAPTS serves any Georgia Tech student who has a documented, qualifying disability. Official documentation of the disability is required to determine eligibility for accommodations or adaptations that may be helpful for this course. Please make sure I receive a Faculty Accommodation Letter form verifying your disability and specifying the accommodation you need. ADAPTS operates under the guidelines of Section 504 of the Rehabilitation Act of 1973 and the 1990 Americans with Disabilities Act (ADA).

* Visit: Smithgall Student Services Bldg, Suite 210 on 353 Ferst Drive
* Email: adapts@vpss.gatech.edu.
* Call: 404-894-2563 (V); 404-894-1664 (TDD); 404-894-9928 (fax)

**Academic Misconduct**

One serious kind of academic misconduct is plagiarism, which occurs when a writer, speaker, or designer deliberately uses someone else's language, ideas, images, or other original material or code without fully acknowledging its source by quotation marks as appropriate, in footnotes or endnotes, in works cited, and in other ways as appropriate (modified from WPA Statement on "Defining and Avoiding Plagiarism"). If you engage in plagiarism or any other form of academic misconduct, you will fail the assignment in which you have engaged in academic misconduct and be referred to the Office of Student Integrity, as required by Georgia Tech policy. I strongly urge you to be familiar with Georgia Tech’s Honor Challenge— http://www.honor.gatech.edu/ —as well as the Office of Student Integrity—http://www.deanofstudents.gatech.edu/integrity/

You should be familiar with the process for academic misconduct—

http://www.deanofstudents.gatech.edu/integrity/academic\_misconduct.php

*A Fair(y) Use Tale:* Professor Eric Faden of Bucknell University provides this humorous, yet informative, review of copyright principles delivered through the words of the very folks we can thank for nearly endless copyright terms. http://www.youtube.com/watch?v=CJn\_jC4FNDo

**Weekly Schedule**

**Week Topic**

1. **Definitions of Risk**: Sandman, HOSTA, Plough and Krimsky, Rodriguez, Weinstein.
2. **Perceptions of Risk**: Slavic, Bouyer et al, Burns, Goodwin and Dahlstrom, Mileti and Peek, Scott and Gray
3. **Rhetoric of Risk**: Grabill & Simmons, Schwartzman et al, Gopen and Swan, Wogalter, Jarrard & Simpson, Plain Language
4. **Design for communicating with the public: C**onnelly & Knuth, Strawbridge, Ancker et al., Kostelnisk, Lipkus & Hollands.
5. **Numeracy for communicating with the public:** Edwards, Elwyn, and Mulley; Peters; Kurz-Milcke et al.; Reynolds & Seege; U.S. Department of Health and Human Services; Williamson & Weyman.
6. Research Paper Presentations
7. Research Paper Presentations
8. **Usability of text and images for communicating with the public:** Albers; Kain, de Jong, & Smith; Redish.
9. **Usability of text and images for communicating with the public:** Usability.gov
10. In-class usability testing
11. Out of class usability testing
12. Out of class usability testing
13. **Usability of text and images for communicating with the public:** Bevan & Spinhof; Petrie & Kheir; useit.com: Jakob Nielsen's Website
14. Out of class usability testing
15. Website presentations