

UTK SIS: Syllabus
Summer 2017
INSC 545: Scientific and Technical Communication

The School of Information Sciences
The University of Tennessee

Class Meetings: Thursday, 6:30-9:15pm on ZOOM;

***ZOOM Course ID/Link**

UTK Syllabus, Provost's Office:

<http://tenntlc.utk.edu/the-syllabus/>

Crystal Sherline, Instructor
Office Hours: By Appointment
csherli1@utk.edu
865.773.4234 (cell)

450 Communications Bldg.
1345 Circle Park Drive
Knoxville, TN 37996-0341
SIS Office: 865.974.2148
Fax (SIS): 865.974.4667

COURSE DESCRIPTION

(3) Evolution of scientific and technical communication; current trends, role of formal and informal communication; major STI organizations and their roles.

This course explores the role of formal and informal communication in scientific and technical domains, including social sciences and STEM (Science, Technology, Engineering and Mathematics/Medicine) for facilitating the discovery of ideas, collaborating between researchers, and disseminating findings to those within the STEM disciplines as well as to the public. Much of the course will focus on formal STEM publishing, now and projections of the future with regard to the role of publishers, librarians, authors and researchers in formal communication systems. Although this is not a course in sources and services in STEM, the topics discussed in this course have implications for the development of effective sources and services.

STUDENT OUTCOMES:

Upon the completion of this course, students should be able to:

- review the history of STEM publishing
- appreciate the roles and interactions of publishers, authors, readers, and librarians in formal STEM communication
- understand how STEM practitioners communicate their work
- know how to apply this knowledge in information intensive organizations
- have ideas on how to shape STEM communication into the future

COURSE DESIGN

The course adopts an active learning approach. Students are required to complete all required readings, attend all class lectures, complete graded activities and assignments, and participate in all class activities, including teacher-led and student-led discussions, and small-group and individual activities. All required readings are listed in the **Course Outline** section of this syllabus. Optional readings are also provided. While not required, you may find it helpful to consult these optional readings when completing select assignments.

REQUIRED TEXTS:

Academic and Professional Publishing, edited by Robert Campbell, Ed Pentz, and Ian Borthwick, Chandos Publishing, 2012.

- There will be additional readings outside of the required text. I will provide links or call numbers where appropriate.

COMMUNICATION

I am required to communicate with you through your UTK email address. If you prefer to use another address, consult the [OIT Helpdesk](#) to obtain directions for forwarding your UTK mail to your preferred address if you don't wish to check both accounts.

COMPUTING REQUIREMENTS

Include policies and procedures, e.g.

You must have adequate computing skills, including but not limited to use of word processing, Web browsers, e-mail, listservs, Blackboard, and Collaborate software. You must learn how to submit your assignments using Bb. The [Office of Information Technology \(OIT\)](#) provides training classes in using varied technologies for students at no charge (advance registration is required).

You must obtain a UT email account and subscribe to the SIS student listserv. In addition, you must have the PowerPoint Reader or the regular PowerPoint software installed on your computer in order to download the lecture notes from Blackboard.

CLASS ATTENDANCE POLICY

It is assumed that each student be present and speak in class -- the equivalent of a "B" grade for "participation." Missing more classes or failing to participate will lower your grade; frequent participation will raise the grade.

Regular attendance is required and necessary. A substantial portion of your grade will be based on in-class work and participation. Unexplained absences will affect your grade. Contact me as soon as possible if you cannot attend class. If you will be absent from class, you must:

- Inform me in advance or as soon as possible after class
- Submit any work due from the missed class period
- Listen to class recording
- Obtain notes, handouts, etc. from Bb
- Check with classmates for notes, announcements, etc.

Acceptable reasons for absence from class include:

- Illness
- Serious family emergencies,
- Special curricular or job requirements (e.g., judging trips, field trips, professional conferences),
- Military obligation,
- Severe weather conditions,
- Religious holidays

- Participation in official university activities such as music performances, athletic competition or debate
- Obligations for court imposed legal obligations (i.e., jury duty, subpoena)

Missing more than one class meeting for reasons other than those listed above will have a negative impact on your course participation grade.

INCLEMENT WEATHER

“The chancellor (or appointed representative) may officially close or suspend selected activities of the university because of extreme weather conditions. When a decision to close is made, information is distributed to the campus community, shared with local media, and posted on the front page at <http://utk.edu>. (Hilltopics, p. 55)(<http://hilltopics.utk.edu/files/Hilltopics%202015-16.pdf>). SIS will cancel classes when UT is closed. Please check the SIS student listserv (UTKSIS-L@LISTSERV.UTK.EDU) for messages about closing.

DISABILITIES THAT CONSTRAIN LEARNING

Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Disability Services (ODS) at 865-974-6087 in 100 Dunford Hall to document their eligibility for services. ODS will work with students and faculty to coordinate reasonable accommodations for students with documented disabilities.

CIVILITY

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Civility enhances academic freedom and integrity, and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other’s well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus: <http://civility.utk.edu/>.

CCI DIVERSITY STATEMENT

The College of Communication and Information recognizes that a college diverse in its people, curricula, scholarship, research, and creative activities expands opportunities for intellectual inquiry and engagement, helps students develop critical thinking skills, and prepares students for social and civic responsibilities. All members of the College benefit from diversity and the quality of learning, research, scholarship and creative activities is enhanced by a climate of inclusion, understanding and appreciation of differences and the full range of human experience. As a result, the College is committed to diversity and equal opportunity and it recognizes that it must represent the diversity inherent in American society. The College is acutely aware that diversity and fairness are foundations that unite the College’s faculty, staff, students, and the larger communication and information community.

ACADEMIC INTEGRITY

Students should be familiar and maintain their *Academic Integrity* described in <http://hilltopics.utk.edu/files/Hilltopics%202015-16.pdf> , p. 15 as: “*Study, preparation and presentation*

should involve at all times the student's own work, unless it has been clearly specified that work is to be a team effort. Academic honesty requires that the student present his or her own work in all academic projects, including tests, papers, homework, and class presentation. When incorporating the work of other scholars and writers into a project, the student must accurately cite the source of that work."

Students should abide by the **Honor Statement** described in the same Hilltopics, p. 73:

"An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."

PLAGIARISM

Plagiarism in any of its several forms is intolerable, and attention to matters of documentation in all written work is expected and required. Inadvertence, alleged lack of understanding, or avowed ignorance of the various types of plagiarism are not acceptable excuses.

Specific examples of plagiarism are:

1. Copying without proper documentation (quotation marks and a citation) written or spoken words, phrases, or sentences from any source;
2. Summarizing without proper documentation (usually a citation) ideas from another source (unless such information is recognized as common knowledge);
3. Borrowing facts, statistics, graphs, pictorial representations, or phrases without acknowledging the source (unless such information is recognized as common knowledge);
4. Collaborating on a graded assignment without the instructor's approval;
5. Submitting work, either in whole or in part, created by a professional service and used without attribution (e.g., paper, speech, bibliography, or photograph).

Students who may be unsure of the nature of plagiarism should consult the instructor or a guide for writing research reports. (Additional resources are available at <http://www.lib.utk.edu/instruction/plagiarism>.)

Infractions of academic integrity are penalized according to the severity of the infraction but **may include a course grade of "F."**

ASSIGNMENTS AND GRADING

Student work is assigned a grade based on quality of thought and writing style, thoroughness of research and of references, appropriateness of length, and originality. Only exceptional work will receive an "A" grade. Papers that are received after the due date will be assigned a lower grade than would otherwise be received. All sources must be cited, quotations must be in quotation marks and attributed correctly. Not doing so constitutes plagiarism.

PREPARATION OF WRITTEN WORK

- I prefer that you use either APA documentation styles.
- All sources must be cited, quotations must be formatted and attributed correctly. Not doing so constitutes plagiarism.

- Grades for assignment submissions that include incomplete in-text citations or reference lists will be lowered by one-half grade level (e.g., an assignment that would have received 17/20, or an 85/100: B, will be lowered to 16/20, 80/100: B-).
- All assignments must be word-processed and **include your name**, date, and class number (545).

DUE DATES AND LATE ASSIGNMENTS

Assignments should be submitted to the “assignments” area of Canvas and are due (officially) at 11:59 p.m. EST on the due date listed on the syllabus. I will download the submissions from Canvas early the next morning. **I will ONLY download assignments from Canvas ONCE.** Therefore, if your assignment is not ready by the deadline...

- You must send me an email informing me that your assignment will be late. **Not doing so will result in a one-point deduction for each day I don’t hear from you.**
- When it’s ready, you must submit it to me via email, as an attachment
- One point will be deducted for each 24-hour hour period the assignment is not turned in.

INCOMPLETES

Based on adopted University of Tennessee-Knoxville and SIS policy, a grade of *I* (Incomplete) is reserved for emergencies that prevent the student from completing the course on time. Incompletes are granted only under "the most unusual of circumstances" and solely at the discretion of the instructor. Plan your semester’s course of study carefully to insure sufficient time to complete the required work.

For students who simply "disappear" without contacting the instructor and without completing the required form, an "F" is submitted.

ASSIGNING GRADES

Please note that I do not assign letter grades for individual assignments, but will mark your paper with my comments and provide a point score based on the possible points earned for that assignment. If you’d like to compute a letter grade based on the score provided, divide your score by the total points possible for the assignment and refer to the scale on pp. 5-6 of the syllabus for the corresponding letter grade. For example, if you earned 23/25 points on an assignment, your percentage grade would be 92/100=B+. Your final grade will be based on total points earned/100 possible points over the course of the semester.

EVALUATION

Describe grading procedures, e.g.

+Semester grades will be assigned according to the following scale:

A	90≤	(4 quality points per semester hour) superior performance.
B+	88- 89.75	(3.5 quality points per semester hour) better than satisfactory performance.
B	80- 87.75	(3 quality points per semester hour) satisfactory performance.
C+	78- 79.75	(2.5 quality points per semester hour) less than satisfactory performance.
C	70- 77.75	(2 quality points per semester hour) performance well below the standard expected of graduate students.
D	60- 69.75	(1 quality point per semester hour) clearly unsatisfactory performance and cannot be used to satisfy degree requirements.

F	59.75≥	(no quality points) extremely unsatisfactory performance and cannot be used to satisfy degree requirements.
I		(no quality points) a temporary grade indicating that the student has performed satisfactorily in the course but, due to unforeseen circumstances, has been unable to finish all requirements. An I is not given to enable a student to do additional work to raise a deficient grade. The instructor, in consultation with the student, decides the terms for the removal of the I, including the time limit for removal. If the I is not removed within one calendar year, the grade will be changed to an F. The course will not be counted in the cumulative grade point average until a final grade is assigned. No student may graduate with an I on the record.
S/NC		(carries credit hours, but no quality points) S is equivalent to a grade of B or better, and NC means no credit earned. A grade of Satisfactory/No Credit is allowed only where indicated in the course description in the <i>Graduate Catalog</i> . The number of Satisfactory/No Credit courses in a student's program is limited to one-fourth of the total credit hours required.
P/NP		(carries credit hours, but no quality points) P indicates progress toward completion of a thesis or dissertation. NP indicates no progress or inadequate progress.
W		(carries no credit hours or quality points) indicates that the student officially withdrew from the course.

COURSE EVALUATION

You will be invited to evaluate the course at the end of the term. Please participate in this valuable process. I also invite your comments throughout the course and read all comments, suggestions, and recommendations.

ASSIGNMENTS: DESCRIPTION

This table provides a brief summary of assignment names, due dates, and grade distribution. A fuller description of each assignment follows the table.

Assignment	Points	Due Date
Class Participation	20	
Interviews with Scientist/Engineer	10	June 29, 2017
Presentation 1	10	July 13, 2017
Presentation 2	20	July 27, 2017
Final Paper	40	August 3, 2017
TOTAL	100	

DISCLAIMER

Please be aware revisions may be made to this syllabus over the course of the semester, and as such, the content contained within may be subject to change.

Please complete all readings prior to the session (listed in the session).

Course Schedule:

Session 1: June 1

Topic: Introduction to the Course; What is Scientific and Technical Communication and why do we study it? Language, Persuasion and Argument

- Garvey, W.D. and Griffith, B.C. (1971). Scientific Communication: its role in the conduct of research and creation of knowledge. *American Psychologist*, 26(1), 349-362.

Kraut, R. and Egido, C. Patterns of Contact and communication in Scientific Research Collaboration. *Proceedings of the Second Conference on Computer-Supported Cooperative Work (Portland, OR, September 26-28)*. AMC, New York, 1988, pages 1-12.

Tenopir, C. and King, D.W. Chapter 2 in *Communication Patterns of Engineers*. Hoboken, NJ: IEEE Press, 2014.

Session 2: June 8

Topic: The Ethics of Science Communication

Required Readings:

- Clarke, M. (2008). The Ethics of science communication on the web. *Ethics in Science and Environmental Politics*. doi: 10.3354/esep00096
- Douglas, H. (2003). The Moral Responsibilities of Scientists (Tensions between Autonomy and Responsibility). *American Philosophical Quarterly*, 40(1): 59-68.
- Kansas State University, Department of Philosophy. Research Communication Ethics Project. <https://www.k-state.edu/philos/ethics-science-communication/>

Session 3: June 15

Topic: Academic and Professional Publishing: Ecosystem and Peer Review

Required Readings:

Campbell, R., Pentz, E. and Borthwick, I.(Eds.) *Academic and Professional Publishing*. Oxford, UK: Chandos Publishing. (chapters 1-3).

Tenopir, C., King, D.W., Edwards, S. and Wu, Lei. Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns. *Aslib Proceedings*, 61(1): 5-32.

Session 4: June 22

Topic: Academic and Professional Publishing: Digital, strategies and finances

Required Readings:

Campbell, R., Pentz, E. and Borthwick, I.(Eds.) *Academic and Professional Publishing*. Oxford, UK: Chandos Publishing. (chapters 4-6).

Session 5: June 29

Topic: Academic and Professional Publishing: Standards and Content

Required Readings:

Campbell, R., Pentz, E. and Borthwick, I.(Eds.) *Academic and Professional Publishing*. Oxford, UK: Chandos Publishing. (chapters 9-11).

Assignment Due: First Interview with Scientists or Technologist

NO SESSION July 6

Session 6: July 13

Topic: Academic and Professional Publishing: Libraries, Copyright and the Future

Required Readings: Campbell, R., Pentz, E. and Borthwick, I.(Eds.) Academic and Professional Publishing. Oxford, UK: Chandos Publishing. (chapters 13, 15, 17).

Assignment Due: Proposal for Final Project

Session 7 July 20:

Topic: Bibliometrics.

Required Readings:

Garfield, Eugene. Citation Indexes for Science: A new Dimension in Documentation through Association of Ideas, First published in Science 1955, preprinted in Blaise Cronin and Cassidy Sugimoto, editors. Scholarly Metrics under the Microscope. ASIST Monograph, Information Today, 2015.

Okuba, Yoshiko. 1997. Bibliometric Indicators and Analysis of Research Systems: Methods and Examples. In STI Working Papers 1997/1. Paris: OECD.

Assignment Due: Presentations

Session 8 July 27:

Topic: E-Science; Open Science; Scientific Data

Required Readings:

Tenopir, Carol, Suzie Allard, Kimberly Douglas, Arsev Umur Aydinoglu, Lei Wu, Eleanor Red, Maribeth Manoff, Mike Frame. "Data Sharing by Scientists: Practices and Perceptions". *PLoS ONE*. 6, no. 6 (2011): e21101.

Session 9 August 3:

Topic: XML, JSON and the revolution of immediate Scientific Communication. Preservation Metadata.

Required Readings:

<https://www.sitepoint.com/really-good-introduction-xml/>

<https://www.w3schools.com/xml/>

https://www.w3schools.com/js/js_json_intro.asp

Assignment Due: Paper

Session 10 August 10:

Topic: The Future.

Required Readings:

Bush, V. (1945). As We May Think. *The Atlantic Daily*.

<https://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/>

Data Everywhere. From ALA, Future Trends:

<http://www.ala.org/transforminglibraries/future/trends/data>

"Big Data for Social Innovation." Kevin C. Desouza and Kendra L. Smith. *Stanford Social Innovation Review*. Summer 2014. Available

from http://www.ssireview.org/articles/entry/big_data_for_social_innovation.

OPTIONAL READINGS:

- Collier, J.H and Toomy, D.M. (Eds.). (1997). *Scientific and Technical Communication: Theory, Practice and Policy*. Sage Publishers.
- Crane, D. (1972). *Invisible Colleges: Diffusion of Knowledge in Scientific Communities*. University of Chicago Press.
- de Solla Price, D. (1963). *Little Science, Big Science*. New York: Columbia University Press.
- Garvey, W.D. and Griffith, B.C. (1967). Scientific Communication as a Social System: The exchange of Information on Research Evolves Predictably and Can be Experimentally Modified. *Science*, 115(3792): 1011-1016.
- Weller, A.C. Editorial Peer Review: Its Strengths and Weaknesses. Chapters 1 and 7. *ASIST Monograph Series*, Medford NJ: Information Today, 2001.
- Crane, D. (1967). The Gatekeepers of Science: Some Factors Affecting the Selection of Articles for Scientific Journals. *The American Sociologist*, 2(4): 195-201.
- Kuhn, T.S. (1970). *The Structure of Scientific Revolutions*. University of Chicago Press.

- Cronin, Blaise. Hyperauthorship: A Postmodern Perversion or Evidence of a Structural Shift in Scholarly Communication Practices? *JASIST* 52, no. 7. (2001): 558-569.
- Tenopir, Carol, and Donald W. King. *Towards Electronic Journals: Realities for Scientists, Librarians, and Publishers*. Washington, DC: Special Libraries Association, 2000.
- Laakso, M., Welling, P., Bukvova, H., Nyman, L. Bjork, B.C., Hedlund, U. (2011). The Development of Open Access Journal Publishing from 1993 to 2009. *PLoS ONE*, 6(6).
- Haug, C. (2013). The Downside of Open-Access Publishing. *The New England Journal of Medicine*, 368(9): 791-793.
- Palmer, Carole L. Information Work at the Boundaries of Science: Linking Library Services to Research Practices. *Library Trends* 45, no. 2 (1996): 165-191.
- Davis, Philip and William Walters. The Impact of Free Access to the Scientific Literature: A Review of Recent Research. *Journal of the Medical Library Association* 99, no. 3. (2011): 208-217.
- Beall, Jeff. "Beall's List of Predatory Publishers 2013." *Scholarly Open Access*. Published December 2012.
- Dickson, J.L., Shirk, J., Bonter, D., et al. (2012). The Current State of Citizen Science as a Tool for Ecological Research and Public Engagement. *Frontiers in Ecology and the Environment*, 10(6): 291-297.
- Miller-Rushing, A., Primack, R. and Bonney, R. (2012). The History of Public Participation in Ecological Research. *Frontiers in Ecology and the Environment*, 10(6): 285-290.
- Newman, G., Wiggins, A., Crall, A. et al. (2012). The Future of Citizen Science: Emerging Technologies and Shifting Paradigms. *Frontiers in Ecology and the Environment*, 10(6): 298-304.
- Dickinson, Janis L., Jennifer Shirk, David Bonter, Ricky Bonney, Rhiannon L. Crain, Jason Martin, Tina Phillips, and Karen Purcell. (2012). The Current State of Citizen Science as a Tool for Ecological Research and Public Engagement. *Frontiers in Ecology and the Environment*, 10(6): 291-297.
- Miller-Rushing, Abraham, Richard Primack, and Rick Bonney. (2012). The History of Public Participation in Ecological Research. *Frontiers in Ecology and the Environment* 10(6):285–290.
- Newman, Greg, Andrea Wiggins, Alycia Crall, Eric Graham, Sarah Newman, and Kevin Crowston. The Future of Citizen Science: Emerging Technologies and Shifting Paradigms. *Frontiers in Ecology and the Environment* 10 no. 6. (2012): 298–304.

- Douglas, Heather. "Inserting the Public into Science." In *Democratization of Expertise?: Exploring Novel Forms of Scientific Advice in Political Decision Making*, edited by Sabine Maasen & Peter Weingart, 153-169. Dordrecht, Netherlands: Springer, 2005.
- Palenchar, Michael J. "Risk Communication and Community Right to Know: A Public Relations Obligation to Inform". *Public Relations Journal*. 3, no. 1 (2008): 1-26.
- Dickinson, Janis L., Jennifer Shirk, David Bonter, Rick Bonney, Rhiannon L. Crain, Jason Martin, Tina Phillips, and Karen Purcell. The Current State of Citizen Science as a Tool for Ecological Research and Public Engagement. *Frontiers in Ecology and the Environment* 10, no. 6. (2012): 291–297.
- Bollen, Johan, Herbert Van de Sompel, Aric Hagberg, and Ryan Chute. A Principal Component Analysis of 39 Scientific and Impact Measures. *PLoS ONE* 4, no. 6. e6022 (2009): 1-11.
- Zipf, George Kingsley, *Human Behavior and the Principle of Least Effort; An Introduction to Human Ecology*. Addison-Wesley, 1949.
- Many in Blaise Cronin and Cassidy Sugimoto, editors. *Scholarly Metrics Under the Microscope: From Citation Analysis to Academic Auditing (ASIST Monograph)*, Edited by Blaise Cronin and Cassidy Sugimoto. Medford, NJ: Information Today, 2015.
- Looks Good On Paper: A Flawed System for Judging Research is Leading to Academic Fraud, Originally Published in the Economist, 2013, In: Blaise Cronin and Cassidy Sugimoto, editors. *Scholarly Metrics Under the Microscope*. ASIST Monograph, Information Today, 2015.
- MacRoberts, Michael H. and Barbara R. Problems of Citation Analysis: A Critical Review, originally published in JASIST 1989, reprinted , In: Blaise Cronin and Cassidy Sugimoto, editors. *Scholarly Metrics Under the Microscope*. ASIST Monograph, Information Today, 2015.
- Van Noorden, Richard. Science Publishing: The Trouble with Retractions, *Nature*, 478, 26-28..
- "Retraction Watch." <http://retractionwatch.com/>
- Weingart, Peter. "Impact of Bibliometrics Upon the Science System: Inadvertant Consequences?" *Scientometrics* 62, no. 1 (2005): 117-131. Available online at <http://link.springer.com.proxy.lib.utk.edu:90/article/10.1007/s11192-005-0007-7>.
- Hey, Anthony J. G., Stewart Tansley, and Kristin Michele Tolle. *The Fourth Paradigm: Data-intensive Scientific Discovery*. Redmond, Wash: Microsoft Research, 2009. Available online at <http://digital.library.unt.edu/ark:/67531/metadc31516/>.