

Writing 3014: Scientific Writing, M, W

Instructor: Zachariah D. Chatterley

Office: LNCO 3890.

Mailbox: LNCO 3700

Office Hours: M,W,F: 10:50-11:40, and by appointment.

Email: z.chatterley@utah.edu

Course Description: Scientific Writing focuses on preparing students to write effectively within their chosen professions in the sciences. Through readings, class discussion, and writing assignments, students will learn effective strategies for preparing a variety of scientific texts. Students will study the conventions of a scientific discourse community (scientific field) and practice writing within that discourse community. Students will also practice practical forms of discourse for the science-related workplace, such as professional communication, summaries, and documentation.

Objectives: In Writing 3014, students will learn about the ways in which written documents serve to create knowledge within their chosen scientific fields. In order to communicate successfully with scientific audiences, students will learn to:

- plan and organize scientific texts using effective rhetorical strategies
- mount a persuasive scientific argument
- use graphics to support claims and to communicate important information
- prepare various forms and styles of scientific writing, including documentation, research proposals, reports, and slide presentations
- address ethical issues within scientific research and writing
- conduct, evaluate, discuss, and document secondary research
- use electronic communication professionally
- revise prose, using a clear, concise writing style

Textbook:

- There is no physical textbook for this class. Instead, there are several required readings posted on Canvas. Some are chapters from textbooks and others are articles from scientific journals or popular science books. You will need to access Canvas weekly to keep up with the readings posted there. In most cases you do not have to print these readings, though there are a few which you will be required to print and bring to class.

Major Assignments and points: Total Points Available=1000

- **Proposal:** An argument for the need and feasibility for a workplace SOP. (100 points)
- **SOP:** A standard operating procedure (or perhaps field guide or instructional article) that walks users through a specific workplace procedure. (100 points)
- **User Test Report:** An IMRAD style report on a user test of your SOP. (100 points)
- **Literature Review:** A research review on a particular scientific area of study. (300 points)
- **Presentation:** Either a conference-style oral presentation or media presentation via video or conference-style poster. (50 points)
- **Small Assignments and reading quizzes:** Several short papers, emails, reading quizzes, and class activities meant to facilitate the major assignments. These include peer review sessions, journal entries, brainstorming activities, e-memos, in-class worksheets, and other tasks. (350 points) There is a thorough explanation of the small assignments at the end of this document.

Document Guidelines: All hard-copy assignments should be printed on 8 ½ x11 white paper with one inch margins. Except for the SOP assignment, 12 pt. New Times Roman font is preferred on all typed work. Papers should have headers that include the student's last name and page numbers. Papers should be stapled. For the Research Review, citation style (such as APA or CSE) should be followed consistently.

It is your responsibility to save each document in two places, such as a hard drive, a flash drive, or an email server so that you have a backup.

Class assignments should be submitted on time or ahead of the class periods by which they are due. Late work will be accepted the following day at a 5% deduction. An additional 5% will be deducted for every day it is late. If you know you will be absent on a given day, make sure to hand in your work ahead of time. In the case of an emergency, you can email a major assignment as an attached file, but this is not preferred.

Grading: Grades will be assigned according to University Standards:

94-100=A; 90-93=A-; 87-89=B+; 84-86=B; 80-83=B-; 77-79=C+; 74-76=C; 70-73=C-; 67-69=D+; 64-66=D; 60-63=D-

Participation Policy: This is an upper division class and you are expected to participate: you should attend class regularly, come to each class fully prepared to participate, read the assigned texts on time, and complete your assignments by or before deadlines. You should attempt to be helpful in any way that improves the learning of the whole class, and actively form questions and ask them as they occur to you.

Anti-participation Policy: No cell phones or ipods will be tolerated in class. If you use either of these during class, you will receive an automatic grade deduction. You can use a laptop unless it becomes a distraction, either to you, to me, or to the class as a whole. If laptops do become a distraction, they will be treated as cell phones, i.e. not allowed at all.

Absence Policy: You can miss 4 classes this semester and not suffer any penalty. On your fifth absence and on any following absences, 10 points will be deducted from your overall score.

Resources: The University Writing Center offers one-on-one assistance with writing. It is located on the second floor of the Marriot Library and is open six days each week. Students can call 587-9122 for a 30 minute appointment with a tutor.

Your instructor is happy to answer questions about grammar and sentence structure via email, in class, or during one-on-one consultation. With that said, this class is not meant to teach basic grammar, and your written work is expected to show a solid command of Standard English sentence structure.

Disabilities: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 801-581-5020. CDS will work with you and the instructor to make arrangements for accommodations.

Accommodations: No content accommodations will be made in this course. The university's accommodations policy can be downloaded at <www.admin.utah/facdev/index.html>.

Week 1, 8/20-8/24

Monday:

- Introduction to Scientific Writing; in-class writing.
- Hand out issues of *Science Magazine*.

Wednesday:

- Read excerpt from James Paul Gee (handout).
- Read short excerpt from Carolyn Miller, “A Humanistic Rationale for Technical Writing.”
- Reading quiz 1. Miller.
- Start browsing through your issue of Science Magazine. See Small assignment 1.

Friday:

- Read Penrose and Katz, “Science as Social Enterprise.” (**Note:** This is the first reading posted on Canvas. Unless otherwise noted, you do not have to print the Canvas readings, but you are expected to read them and come to class prepared to talk about them; there will be small reading quizzes on many of the readings from this class.)
- **Reading Quiz 1 due before class; submit to Canvas.**
- Introduction of SOP Project and Proposal Assignment.

Week 2, 8/27-8/31

Monday:

- Read excerpt from Gwande, *The Checklist Manifesto*. (**Reading quiz 3**)
- Read Haynes et al., “A Surgical Safety Checklist.” (**Reading quiz 3**)
- **Reading Quiz 3 due before class.**
- Read excerpt from Carr, *The Shallows*.

Wednesday:

- Continue discussion of Gwande, Haynes, and Carr.
- Keep browsing through your issue of *Science Magazine* and start writing Small Assignment 1, a brief review of *Science Magazine*.

Friday:

- Browse through an issue or two of *Science* magazine (these were handed out in class during the first week). You don’t have to read the entire issue or even an entire article, but you should browse through it to get a feel for the different genres of articles it contains. Come to class prepared to talk about the issue with other students. See the “Small assignment 1” at the end of this document
- **Small Assignment 1 due (50 points: 40 points for the short paper and 10 points for showing up and taking to other students).** See list of small assignments at the end of this document.

Week 3, 9/3-9/7 No class on Monday: Labor Day

Wednesday:

- Read Jones and Lane, “Proposals.” Do not skip over the example that starts on page 553 (pdf page 10); it’s a good example of a workplace proposal and you should read it. (**Reading quiz 3**).

Friday:

- Skim Burkholder and Rublee’s proposal to the National Sea Grant College foundation; **read the following pages closely: 286, 294, 295, 301½-302.**
- **Small Assignment 2—e-memo for SOP project (20 points):** Send me an email at z.chatterley@utah.edu describing what you intend to do for your SOP project and who your audience is for both the proposal and the SOP (keep in mind that these two assignments will be directed at different audiences). **Due via email before Wednesday of week 3.**
- Read “email etiquette” on Canvas.

Week 4, 9/10-9/14

Monday:

- Read Williams, *Style: Ten Lessons in Clarity and Grace*, Chapter 7 (you can get away with reading only the first 10 pages). (**Reading quiz 4**)
- Read first 8 pages of “Sentence Structure Guidelines”.

- **Small Assignment 3—Journal Prompt (20 points); submit via canvas:** Write a page about the audience for your proposal and about the things that matter to that audience.

Wednesday:

- **Small Assignment 4: Peer Review of Proposal (20 points):** Bring a printed draft of your proposal to class.
- Skim Hult and Huckin, Chapters 38 and 39, Parallelism and Emphasis.

Friday:

- **Major Assignment Due: Proposal for SOP (100 points).**
- Read “EPA Guidelines for SOPs, abridged version.”

Week 5, 9/17-9/21

Monday:

- Read/skim Markel, “Writing Definitions, Descriptions, and Instructions.” (**reading quiz 6**)
- Introduce SOP and IMRAD assignments.

Wednesday:

- Skim sample SOPs on Canvas. Look for what is well done and what isn’t.
- Start writing your SOP!

Friday:

- Read Wilson, “The User Edit Method.” (**reading quiz 7**)
- Read Jakob Nielsen, “Usability 101.” (**reading quiz 7**)

Week 6, 9/24-9/28

Monday:

- Organize and plan the user test for your SOP.
- **Small Assignment 5— Plan for the user test (20 points).**

Wednesday:

- **Small Assignment 6—Peer Review of SOP (20 points):** bring a polished draft of your SOP to class.
-

Friday:

- Read Penrose and Katz, “Research Reports.” (**Reading quiz 8**)
- Reread (skim) Haynes et al., “A Surgical Safety Checklist.”

Week 7, 10/1-10/5

Monday:

- Skim sample student IMRAD reports on Canvas.

Wednesday:

- Skim Luciana et al., “IMRAD: a fifty-year survey” (Canvas).
- Review of formal style, report structure, sentence structure, etc.
- Review of everything that matters for SOP project. There’s no additional reading. Go finish the SOP and User Test Report.

Friday:

- **Small Assignment 7— Peer Review of User Test Report and/or second peer review of SOP (20 points).**
- Discussion on choosing a topic for the literature review.

Week 8, 10/8-10/12 No class this week: Fall Break

- Finish the SOP project.
- Think about what topic is interesting enough for you to study for the last half of the semester.

Week 9, 10/15-10/19

Monday:

- **Major Assignment Due: User Test Report (IMRAD) (100 points).**
- **Major Assignment Due: SOP, Field Guide, or Instructional Article (100 points).**

- Introduction to literature review. Introduction to databases.

Wednesday:

- Read Penrose and Katz, “Reviewing Prior Research.” Introduction to Literature Review Assignment. **(Reading quiz 9)**

Friday:

- Meet in computer lab, GC 1855. **There will be credit given for showing up to the lab sessions.**
- **Small Assignment 8—e-memo for Literature Review (20 points):** Send an e-memo stating the topic for your Literature Review. Due by the end of the week.

Week 10, 10/22-10/26

Monday:

- Meet in our regular room.
- Read Estes et al. “Trophic Downgrading of Planet Earth.” **(Reading quiz 10)**

Wednesday:

- Meet in computer lab, GC 1855. **There will be credit given for showing up to the lab sessions.**

Friday:

- Meet in computer lab, GC 1855. **There will be credit given for showing up to the lab sessions.**

Week 11, 10/29-11/2

Monday:

- Skim Blaser, “Gastric Campylobacter-like Organisms.”
- Skim Cook, Augusto, Jakkula, “Ambient Technologies: Technologies, Applications, and Opportunities.”

Wednesday:

- Read Marcus and Oransky, “Why Garbage Science Gets Published.” **Reading quiz 11**
Found here: <http://nautil.us/issue/55/trust/why-garbage-science-gets-published>
- Skim Aschwanden, “Failure is Moving Science Forward.” **Reading quiz 11**
Found here: <http://fivethirtyeight.com/features/failure-is-moving-science-forward/>
- Sign up for a time slot to meet one-on-one

Friday:

- **No class:** one-on-one meetings.
- **Small Assignment 9— Build a framework outline (30 points):** Make an outline of how you will organize your research review. Consider how Estes et al. and Blaser organize their reviews, and then begin developing your own method of organization for the research you have done. It may help to create a table. **Due during individual conference. Your score on Small Assignment 9 depends on you showing up to the meeting with some actual content. You don’t need every detail figured out, but you should be able to show some research and thought on your topic and your paper. You are expected to be pro-active.**

Week 12, 11/5-11/9

Monday

- **No class:** one-on-one meetings.

Wednesday:

- **No class:** one-on-one meetings.

Friday:

- Discussion of Literature Review paper requirements.
- Discussion of framework outlines. Discussion of tables for organizing content of the review.

Week 13, 11/12-11/16 Start writing your Literature Review this week!

Monday:

- Listen to the following podcast: “Update: CRISPR.”
Found here: <https://www.wnycstudios.org/story/update-crispr/>

Wednesday:

- Read “Davidson College Statement on Plagiarism” (Canvas).
- Read excerpt from Oreskes and Conway, *Merchants of Doubt* (Canvas).

- Discussion of citation and ethics in scientific writing.

Friday:

- Read Gopen and Swan, “The Science of Scientific Writing.” **Reading Quiz 12**
- Review of punctuation, style, grammar, citation, organization, and other relevant stuff.

Week 14, 11/19-11/23 No class on Friday: Thanksgiving Break

Monday:

- **Small Assignment 10— Peer Review of Literature Review (30 points):** Bring a printed copy of your Literature Review to class.

Wednesday:

- Optional Class.

Week 15, 11/26-11/30

Monday:

- **“Soft” due date for Literature Review (300 points).**
- Read Tufte, “PowerPoint is Evil.” Found here: <http://www.wired.com/2003/09/ppt2/>

Wednesday:

- Presentations
- **Show up and participate while other students are presenting. (30 points)**

Friday:

- Presentations

Week 16, 12/3-12/7

Monday:

- Presentations.

Wednesday:

- Presentations

Notes on wrapping things up:

- **The Literature Review** should be handed in sometime during week 15 or 16. It needs to be handed in both electronically (through turnitin.com) and as a printed copy in class or in my office. If you hand it in during week 15, I will try very hard to give you constructive feedback before the semester ends. If you hand it in during week 16, I will give feedback by request only. Students who express a genuine desire to publish their review can meet with me during finals week or next semester to get detailed feedback and discuss potential changes prior to submitting it to a journal.
- **The presentation assignment** will give students the option to either present the content of their review to the class (about 12 minutes of PowerPoint) or to make some sort of media presentation of their review (poster, video, webpage, etc.) Most students will present during weeks 15 and 16, but students will also have the option of presenting to a smaller crowd during the final exam period (specific date and time to be announced). Students who make a poster or video do not have to present it publically (though they can).

Small Assignments:

These assignment vary in length, and some are easier than others. All of them should be typed. Some will be turned in via email, though most should be printed.

- **Journal entries** are meant to be complimentary to what we will be doing in class and ideally they will facilitate the mental work involved in certain assignments. Thus, you should focus on responding to the issues raised by the prompts. However, as with any personal journal, the structure of responses can be “loose.” You can write in the style that feels most comfortable to you, and you can feel free to go on tangents so long as they are useful.
- **Peer review sessions** require consistency on your part. Please show up on time and with a PRINTED copy of the assignment being reviewed.
- **E-memos** should not be super short statements such as “hey, I’m doing my project on Cancer.” They don’t have to be super-long, but they should contain at least a few sentences. They should be long enough to clearly explain what you intend to do for your project. They should also be written with a relatively formal voice. They will be graded.

Small Assignment 1— Mini-review of *Science Magazine* (50 points: 40 for the paper and 10 for showing up to class and talking to other students). During the first day of class you will receive a copy or two of *Science Magazine*, the official journal of the American Association for the Advancement of Science (AAAS). Browse through the issue. Do not feel obligated to read full articles (though you certainly can if you’re interested); instead, *skim* through *some* of the articles, paying particular attention to shifts in writing style. Notice the different sections of the magazine and what they contain. Notice the different tone and style used throughout the magazine. Notice the different types of article (letter vs essay vs report vs perspective vs policy statement vs review, etc.) Come to class on the appropriate date (see syllabus) prepared to talk about what you found in your issue of *Science*. Here are some specific questions you should try to address:

- What different sorts of articles did you encounter? What is their purpose?
- How does the style of writing differ between articles?
- What sorts of advertisements are included in the magazine?
- What was particularly interesting to you in the issue?
- Did you have trouble following/understanding any of the articles? Why or why not?
- Did any of the articles seem relevant to your major/field? Why or why not?
- Did you learn anything about scientific discourse from browsing the issue of *Science*?

Please note that your paper does not have to contain comprehensive answers to all of these questions. This is meant to be a short assignment, and one of its purposes to help introduce me to your writing. Please don’t write more than 3 pages, and please don’t get hung up on finding the “right” answer. For this first assignment, I’m looking for your impression of the magazine, not an encyclopedic description.

This assignment is worth 50 points. 10 points will come from attending class and talking through these questions with other students, and 40 points will come from a 1½-2 page paper, double spaced. The paper is meant as a sort of “diagnostic” sample and it won’t be graded harshly, but it does require a legitimate effort to get credit (i.e. don’t hand in a half page of scattered and superficial comments).

Small Assignment 2—e-memo for SOP project: Email me a plan for your SOP project. Please note that this is not the actual proposal and it doesn't need to be highly detailed, but please write 4-5 sentences describing what you intend to write your SOP about, who the intended audience is, and what organization you will be appealing to in the proposal (i.e. who would be interested in implementing your SOP?). z.chatterley@utah.edu.

Small Assignment 3—Journal Prompt: Consider your proposed topic for your SOP, and now think about an audience that would be interested in implementing the SOP (i.e. lab PI, professor, business owner). Write a page speculating about the “mind-set” of that audience. What does he/she/they care about? What are their primary goals? What are their primary concerns? What job-related complications keep them awake at night? If you were that person, what would you be focused on? (Note that while this journal entry is obviously meant to establish context for your proposal, it may affect the assignment only in very subtle ways. In other words this assignment isn't necessarily meant as a direct brainstorm on the content your proposal, but rather as an exercise in focusing your attention on the audience as a real and tangible entity.)

Small Assignment 4—Peer Review of Proposal: Bring a polished draft of your proposal to class and participate in peer review. To get full credit for this assignment, you need to show up to class on time with a printed copy of the proposal.

Small Assignment 5— Plan for the user test: Write about a page describing how you will conduct the user test for your SOP. Clarify where the test will take place, whom you will ask to participate, and how you will record the relevant data, what you will do while the test actually takes place, what criteria will determine whether the SOP is successful, etc. State any potential complications or problems for the test and clarify how you can overcome them.

Small Assignment 6— Peer Review of SOP: Bring a draft of your SOP and participate in peer review.

Small Assignment 7— Peer Review of IMRAD User Test Report and second peer review of SOP: Same as small assignment 6, except this time come with a copy of your IMRAD report. If you haven't yet had a chance to complete the testing for the IMRAD report, bring a copy of your SOP for a second round of peer review.

Small Assignment 8—e-memo for Literature Review: Email me with a proposed topic for your Literature Review project. Explain your level of familiarity with the topic, what drew you to it, and why you think it would make a good topic for a literature review. The email should be sent to z.chatterley@utah.edu.

Small Assignment 9— Build a framework outline: The Template for this outline will be provided and explained in class. The outline is meant to give you a sense of how you can organize your review. **Please bring it with you during the individual conference.** Also bring any other materials that may be helpful for explaining the content and structure of your literature review, including studies you will use, notes you have taken, tables/outlines you have made, etc. Be proactive.

Small Assignment 10— Peer Review of Literature Review. You know the drill by now. Bring a printed copy of your Literature Review to class.