

ME 597: Academic Writing and Communication for Engineering Graduate Students
Penn State University
Department of Mechanical Engineering
Instructor: Dr. Catherine Berdanier
Tuesdays 11:15 am-2:15 pm, Engineering Unit B 107

Office: 206 Reber Building

Contact information: cgb9@psu.edu; Office phone (814) 865-0040

Office Hours:

On-campus walk-in hours: Mondays 1-2:30 pm

Shut Up and Write hours: Mondays 9-10:30 am in the Reber E-Knowledge Commons

Virtual office hours for WC students: Sundays 8:30-10:00 pm (Eastern time) via Zoom

<https://psu.zoom.us/j/3364936904>

Textbook : Alley, M. (2018). The Craft of Scientific Writing (4th ed.). Springer. Available through PSU Libraries as an E-Book:

<https://ebookcentral.proquest.com/lib/pensu/detail.action?docID=5327233>

Course management: Canvas learning management software

<https://canvas.psu.edu>

Resident student: Solstice Wireless Content Sharing Technology

<https://mirror.psu.edu/>

COURSE OBJECTIVES:

The main objective of this module is to prepare graduate engineering students for their future careers in engineering through the teaching of disciplinary academic writing. Merit in science and engineering fields, although often thought of as simply technical or mathematical, ultimately depends on one's ability to write clearly and efficiently to produce papers, reports, and successful grants. Practicing writing to disciplinary experts in your discourse and disciplinary communities will help you to form an identity as a scholar and a producer of knowledge, as well as to productively complete departmental milestones within the academic program. This course is designed through project-based learning principles in order to guide students in completing either a proposal for master's or Ph.D. research or the final paper/dissertation. At the end of the course, students will be able to:

1. Demonstrate revision and writing skills related to academic engineering
2. Demonstrate peer-review and self-review strategies for writing
3. Synthesize relevant literature related to a research topic for a literature review
4. Evaluate academic engineering written and oral communication
5. Translate research findings to a variety of stakeholders

COURSE REQUIREMENTS:

This course is a 15-week course on engineering writing and communication meeting twice per week, working toward a deliverable for your Master's or Dissertation research (MS Paper/Thesis, Dissertation proposal, journal article, grant application, etc.) These will have slightly different page requirements, but we will jointly decide on appropriate guidelines. Best practices in writing and revision strategies will be taught, structured through the authentic writing task of communicating current research.

The course will require active participation throughout the course, engaging with both resident and online students. Within this course, and you will develop collegial relationships with other students as you help each other to review, revise, and edit your deliverables. You will also help each other meet deadlines throughout the semester. Oral communication of written results is also an important component of engineering communication, especially in graduate school, so this course, although it focuses on engineering writing, will also involve oral presentation components.

I expect all learners in the experience to invest the time in the course required to complete deliverables at a level expected by graduate-level scholars. I have explicitly placed deliverables throughout the semester in order to facilitate the deliberate and distributed practice of writing. Although writing can be challenging, you can expect that the effort put into performing well in this course will directly impact your ability to successfully complete departmental academic written milestones, as well as prepare you to communicate in professional environments.

I suggest that you form "Shut Up and Write" groups with other students in the class to facilitate accountability for working on writing throughout the week, and not just before deadlines. In addition, I will provide many other resources to help you overcome mental roadblocks as a writer: During the first week of class, I'll have you take a survey in order to determine some personalized strategies for approaching writing tasks, taking into account your conceptions and processes of writing.

ATTENDANCE and IN-CLASS PARTICIPATION POLICIES (for both Resident and Online Students)

Attendance in class will be required for resident students, and online students will be required to engage with the online content and exercises within the week the material is introduced. Resident students are allowed to access the online course content, but the participation points awarded will come from class attendance. Attendance exceptions that are made for religious purposes must be submitted to me in writing by the end of the second week of class. If you have health issues and may need special accommodations, I best able to work with you if I am aware of these issues in advance. If you have conferences or other professional reasons for absence this Fall, please let me know by the second week of class. Especially since this class is a once-per-week offering, attendance is important.

Online students: Participation will be monitored through participation exercises. I will post a schedule for each week to outline the schedule, and what activities you should do between each of the videos to facilitate a learning experience as similar as possible to that of the resident students.

COMMUNICATION POLICIES

Because this course teaches strong engineering communication, I expect that all elements of communication between students and with me as an instructor be conducted with respect. All emails sent to me must subscribe to professional expectations for communication, including a salutation, clear emails in full sentences that are grammatically correct and have been spell-checked, communicate clearly how you would like me to assist you, and end with a respectful closing followed by your name. I request that you call me Dr. Berdanier or Dr. B, and address me as such in emails and in person. If your emails with me do not subscribe to these requirements, I will kindly request that you revise your emails and re-send it to me before I will respond to your email.

You are welcome to email me at any time, however, I will be most responsive to emails during business hours. Although you may receive emails from me on weekends/holidays/evenings, I reserve the right to not be “on call” outside of working hours. All emails should include **ME 597** in the subject line, as well as the subject of the email in order so I can quickly scan my emails. I will respond within one full business day to emails.

DELIVERABLES and WEEKLY ASSIGNMENTS:

In-class participation exercises will be embedded within all class sessions that will be accessed and submitted via Canvas. All resident students will be expected to bring a laptop, tablet, or other device (that can be easily typed with) to class in order to complete the exercises. Online students will complete the same exercises as they watch the class sessions in order to engage with material in the same ways that the resident students do.

There will be several deliverables to be handed in throughout the semester that ultimately build toward the final deliverable, whatever you decide that will be.

Please note: Each large deliverable has a draft version due two weeks before, and has a peer review evaluation component. You will be graded on each of these components as well as the final. Therefore, if you do a poor job peer reviewing your partner’s work, it will be reflected in your grade for the assignment. Similarly, your drafts will be graded in order to encourage you to present your best work for the draft. Although it is not required, it is highly suggested that you find a time to meet with you’re the person who reviewed your work to go over the requested revisions. This element of peer review is meant to mimic and practice the peer-review component of writing that is essential to the creation of scholarly knowledge.

Grading will be accomplished through rubrics, which will be available to you all ahead of time. I will also be commenting on your draft assignments in order to help you gain a sense of how much work you will need to do in order to perform well on your final deliverable. Please take advantage of office hours and appointment times to meet your writing goals and to gain additional feedback. All deliverables (both final and drafts) will be due on Mondays at midnight. I will have the feedback for the drafts back to you by the next Monday, and final versions of the deliverable will be due the following Monday.

Late assignments: I will not accept late deliverables unless an extension has been granted. **You will receive a grade of zero on a late assignment, as determined by Canvas. Do not gamble with the Canvas clock.** If you know you'll need an extension, please arrange it with me at least **two days in advance** of the due date. If you have an extension on a "draft" you may not receive peer review but will still need to review a colleague's work to earn those points.

The canvas system will not assign you a peer review partner if you do not turn in an assignment on time. Therefore, if you have an extension or missed a deadline, it is your responsibility to send me an email asking me to manually assign you a peer review partner.

REQUIREMENTS OF MAJOR DELIVERABLES:

Introduction Video: Create a two-minute video introducing yourself to me and the other members of the class and post it online, including

1. your engineering research interests,
2. what you're intending to achieve through this course, and
3. something interesting about you or something interesting you did this summer.

If you're an online student, please mention if you're working professionally somewhere as an engineer, and a little bit about what you do there.

Professional Biography: Write a 1-paragraph professional biography that could be used for a journal publication, an invited talk, or another professional venue. This will include your academic degrees, work experience, and research interests. Include a photograph of yourself that would be posted to a professional venue (LinkedIn, a professional website, etc.)

Deliverable Proposal: (1-1.5 pages, single spaced). Include:

- A very short literature review including relevant literature (with citations) to establish a research gap
- define the gap
- present your proposed research questions or research objectives.

Also include

- the purpose of the paper (e.g., Master's paper, journal article, etc.) and
- the page range you think is appropriate for your proposed goal.
- The citation style that you're following (e.g., ASME, Chicago, APA, etc.)

Annotated Bibliography (a distributed assignment over the course):

Use the citation style you're using for your document: Be consistent. Number your entries, so I can easily see how many you have. Organize them in alphabetical order by first author's last name.

Annotated Bibliography #1: Full citations and small summaries of major findings for a total of 10 journal articles that are relevant to your proposed research topic

Annotated Bibliography #2: Building on annotated bibliography #1, Full citations and small summaries/major findings for a total 25 journal articles that are relevant to your proposed research topic.

Annotated Bibliography #3: Building on annotated bibliography #2, Full citations and small summaries/major findings for a total of 50 journal articles that are relevant to your proposed research topic

Final Deliverable (Research Paper of some sort): Composed of several main components, as well as a title and (formatted) references, a final research paper will comprise an **abstract, introduction, literature review (or, one Background section, depending on your venue), methods, results, a discussion (depending on venue), and conclusions.** Other types of documents may vary in the sections required.

Abstract: Summarizes the document for your readers

Introduction: Motivates the topic

Literature Review Extended Outline: Due before the literature review, this will be an opportunity to revise the argument macrostructure before the specific writing happens.

Literature Review: Justifies your research project and research questions. A rubric will outline the criteria for grading.

Methods: Explains in detail your use (and justification for) the methods that you will use to study your proposed phenomena of interest. This may require incorporation of relevant literature.

Results: Outlines [expected] results and how you expect this to contribute to the research community, relating your anticipated results back to the literature gap you established.

Conclusion: Summarizes and concludes your paper, focuses on answering the research questions proposed earlier.

Technical Research Presentations: Prepare a miniature research presentation using the assertion-evidence method. A rubric for this presentation will be provided. Online students will present virtually via Zoom (schedule TBD). The time allocation will depend on the number of students in the class.

Politician Research Pitch: The final assignment in the class, in lieu of a final exam, will be a three-minute video presenting your research to a congressperson. Be creative!

Writing Log: Expertise in a competency takes hundreds of hours to build—you may have heard about the 10,000 hour rule for expertise. Writing is no different. Weekly, I'd like you to submit a log of your hours you've spent writing. This log will be kept via a live Google doc for the class. Update your log by **Tuesday at 5:00 am Eastern time** for credit (I will keep screenshots.). This will be part of your "participation" grade. The link to the google doc is:

<https://docs.google.com/spreadsheets/d/1JrmA1z5Owzfg58RGGLUhxDU6l6H5wUBZu80CC22L92M/edit?usp=sharing>

COURSE CALENDAR:

Note: Any readings will be assigned on Canvas. You will be expected to have read them before class on Wednesday to discuss. All deliverables will be due on Monday nights		
Week Number/Module	Topic	Deliverables Due by Mondays 11:59 pm unless otherwise stated
1 (8/27)	Introduction to the Course, Expectations Module A: Social, Cognitive, and Affective Elements of Writing	
2 (9/3)	Module B: Finding and Managing Literature Alley “Craft of Scientific Writing” (4th ed.) Appendix A, B, & C	Due 9/2, 11:59 pm <ul style="list-style-type: none"> • Introduction Video—submit to Box folder • Writing Attitudes Survey (find link in Canvas)
3 (9/10)	Module C: Building Blocks to Technical Genres: Unpacking Rhetoric, Structure, and Form Alley “Craft of Scientific Writing” (4th ed.) Chapter 1	Due 9/9, 11:59 pm <ul style="list-style-type: none"> • Professional Biography (draft) • Annotated Bibliography #1 due on Canvas • Week 2 (9/3-9/9) Writing Log
4 (9/17)	Module D: Structure, Conciseness, and Fluidity Alley “Craft of Scientific Writing” (4th ed.) PICK ONE of Chapters 2, 3, or 4 as you think you need to work on in your writing	Due 9/16, 11:59 pm <ul style="list-style-type: none"> • Peer review evaluation of biography due on Canvas • Deliverable Proposal (draft) on Canvas • Week 3 Writing Log
5 (9/24)	Module E: Honing Your Writing through Revision for Clarity and Emphasis Alley “Craft of Scientific Writing” (4th ed.) PICK ONE of Chapter 5, 6, or 8 as you think you need to work on in your writing	Due 9/23, 11:59 pm <ul style="list-style-type: none"> • Professional Biography (final) due on Canvas • Peer review evaluation of proposal due on Canvas • Annotated Bibliography #2 to Canvas • Week 4 Writing Log
6 (10/1)	Module F: Fluidity Variance and Visual Elements of Argumentation Wainer et al. (1984) <i>How to Graph Data Badly</i> Rolandi et al. (2011) <i>A Brief Guide to Designing Effective Figures for the Scientific Paper</i>	Due 9/30, 11:59 pm <ul style="list-style-type: none"> • Literature review extended outline due on Canvas • Deliverable Proposal (final) due on Canvas • Week 5 Writing Log
7 (10/8)	<i>No Class this week: Dr. B in Norway giving a week-long writing workshop</i>	Due 10/7, 11:59 pm <ul style="list-style-type: none"> • Week 6 Writing Log ***Due THURS 10/10, 11:59 pm***** • Annotated Bibliography #3 due to Canvas
8 (10/15)	Module G: Elements of Strong “Front Matter” Alley “Craft of Scientific Writing” (4th ed.) Chapter 7	Due 10/14, 11:59 pm <ul style="list-style-type: none"> • Literature review (draft) on Canvas • Week 7 Writing Log

9 (10/22)	<i>Dedicated Work Time and Conferences with Dr. B About Literature Reviews</i>	Due 10/21, 11:59 pm <ul style="list-style-type: none"> Peer review evaluation of literature review on Canvas Week 8 Writing Log <i>Progress Check-in #1: Progress on Entire Document—upload to Canvas; graded for effort/progress, not quality</i>
10 (10/29)	Module H: Elements of Strong “Back Matter” (Anticipated Results, and Future Work/Conclusions sections)	Due 10/28, 11:59 pm <ul style="list-style-type: none"> Literature review (final) to Canvas Week 9 Writing Log <i>Progress Check-in #2: Progress on Entire Document—upload to Canvas; graded for effort/progress, not quality</i>
11 (11/5)	Module I: Effective Engineering Presentations: The Assertion Evidence Approach	Due 11/4, 11:59 pm <ul style="list-style-type: none"> Week 10 Writing Log Draft of final manuscript due on Canvas
12 (11/12)	“Round Robin” Peer Review	Due 11/11, 11:59 pm <ul style="list-style-type: none"> Week 11 Writing Log <p>NOTE—The “round robin” will take the place of your peer review points for the final deliverable assignment</p>
13 (11/19)	<i>Dr. B in Jena, Germany Giving Writing Workshops</i>	Due 11/18, 11:59 pm <ul style="list-style-type: none"> “Politician Research Pitch” Draft Videos due (submit via Box; paste shareable Link to the Assignment on Canvas) Week 12 Writing Log
Thanksgiving break, no classes		
14 (12/3)	Module J: Translating Academic Information to Various Audiences	Due 12/2, 11:59 pm <ul style="list-style-type: none"> “Politician Research Pitch” Peer review Week 13 + Thanksgiving Week Writing Log FINAL manuscripts due to Canvas
15 (12/10)	Final presentations (schedules TBD)	Due 12/9, 11:59 pm <ul style="list-style-type: none"> Submit your presentation to the course Box folder
16	Finals week: Watch “Focus On” videos (Due during finals time slot) <ul style="list-style-type: none"> Submit your video to the course Box folder 	

*All parts of the proposal requiring literature will include a complete, formatted references section

**See grading section for further clarification on these topics

***For Candidate students who are working on a journal manuscript or their final dissertation, we may have outside help sessions on presenting results and writing results sections.

GRADING

All grading will be done on a flat scale, with no grading curve. Grades will subscribe to the cutoff points in the table below.

Quality of Performance	Grade	Percentage Cutoff
Excellent	A	93.0
	A-	90.0
Good	B+	87.0
	B	83.0
	B-	80.0
Satisfactory	C+	77.0
	C	70.0
Poor	*D	60.0
Failure	**F	< 60

The total weights of each of the assignments across the semester are distributed as such:

Participation: Formative Exercises, Intro Video, Writing Logs, Progress Check-Ins (10% total) **(I will drop one low score for a forgotten activity/writing log)**

Professional Biography (5%)

Annotated Bibliography (10%--divided into three parts)

Deliverable Proposal (10%)

Literature Review Extended Outline (5%)

Literature Review (15%)

Full Manuscript (30%)

Non-Writing Assignments: Final Proposal Presentation + Peer Evaluations and
 “Politician Research Pitch” Video Presentation (15%)

TOTAL.....(100%)

See rubrics on Canvas for the distribution of points and the criteria required to earn the points.

TEACHING PHILOSOPHY

As an engineer and an engineering writing researcher, I am invested in teaching engineering writing through authentic tasks that are ultimately highly useful for graduate students completing academic milestones. I design and teach courses that are applicable throughout your graduate career and career as an engineer. As such, I subscribe to project-based learning, the importance of the social component in all learning, incorporation of online students into the traditional classroom, and the importance of teaching graduate students to critically evaluate their own and others’ communication.

My personal phone policy is in place for this semester: Please put your phone away for the duration of class, and please silence it so as not to be distracting to others. If you need an exception from this policy (expecting a phone call; childcare emergency, etc.) please let me know before class.

PLAGIARISM AND ACADEMIC DISHONESTY

Plagiarism and academic dishonesty are not tolerated in this class, because it violates the ethical responsibilities of scholars, engineers, and de-values the efforts of your fellow students. As such, academic dishonesty of any form, including plagiarism, will not be tolerated. In order to avoid unintentional plagiarism, it is important to cite all your sources when you directly quote an article or use thoughts that are the result of someone else's intellectual work. Students caught cheating or guilty of plagiarism (whether intentional or unintentional) will receive a zero for the assignment and will be reported to the institutional governing bodies.

The University defines academic integrity as the pursuit of scholarly activity in an open, honest and responsible manner. All students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts (refer to Senate Policy 49-20). Dishonesty of any kind will not be tolerated in this course. Dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students who are found to be dishonest will receive academic sanctions and will be reported to the University's Office of Student Conduct for possible further disciplinary sanctions (refer to Senate Policy G-9).

See this link for more information: <http://studentaffairs.psu.edu/conduct/AcademicIntegrity.html>

OTHER UNIVERISTY POLICIES

Educational Equity and Anti-Discrimination

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the [Report Bias webpage](#).

Accommodating Disabilities

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. For further information, please visit the Office for Disabilities Services [website](#).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation. More information can be found at the following [link](#). If the documentation supports your request for reasonable accommodations, your campus' disabilities services center will provide you with an accommodation letter. Please share this letter with your

instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.

ADDITIONAL POLICIES

Log-In Policy

Students are expected to log-in regularly to keep up-to-date with announcements, discussions, etc. The class will progress at a regular pace throughout the semester and there are specific due dates and times for assignments, etc.

Accommodations for Military Personnel

Veterans and currently serving military personnel and/or spouses with unique circumstances (e.g., upcoming deployments, drill/duty requirements, disabilities, VA appointments, etc.) are welcome and encouraged to communicate these, in advance if possible, to the instructor in the case that special arrangements need to be made. We value and respect our military students and your families as well as the unique challenges you face. We want you to be successful students at Penn State, whether you reside in State College or anywhere in the world.

Graduate School Success and CAPS Counseling

While starting graduate school at Penn State can be an exciting and fulfilling experience, there can also be some stressful aspects of the transition and the experience. The combination of academic stress, career uncertainty, and spending time away from friends and family can lead to a sense of anxiety, loneliness or depressed mood. Questions such as “What if I can’t do it?” can surface when you compare yourself to others who appear to be happy and successful (at least on the outside). Everyday issues such as making new friends, learning department policies and politics, communicating with instructors and your advisor, dealing with a romantic relationship, honoring family and caregiving commitments, or trying to find time to “have a life” may feel challenging and at times overwhelming. It’s important to take some time to get oriented and settled into Penn State, whether you are a resident or World Campus student. Be aware that uncertainty and doubts are common as you begin the graduate school experience but persistence can pay off. If you struggle with ongoing mood or anxiety issues, it will be important to reach out for help early in order to arrange for ongoing assistance and support. Don’t try to “Go it alone.”

The Center for Counseling and Psychological Services (CAPS) wants to invite you to seek out CAPS services if you think they would be helpful. Students who experience personal issues that interfere with their academic performance, social development, or satisfaction at Penn State are encouraged to seek confidential assistance from Counseling and Psychological Services (CAPS) Center (<http://studentaffairs.psu.edu/counseling/> (Links to an external site.)Links to an external site.). They can be reached at (814) 863-0395.

Penn State Crisis Line (24 hours/7 days/week): 877-229-6400
Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

Location: 501 Student Health Center

Phone: 814-863-0395

Office Hours: Mon-Fri 8am-5pm EST

<http://studentaffairs.psu.edu/counseling>

Copyright Notice

All course materials students receive or to which students have online access are protected by copyright laws. Students may use course materials and make copies for their own use as needed, but unauthorized distribution and/or uploading of materials without the instructor's express permission is strictly prohibited. University Policy AD 40, the University Policy Recording of Classroom Activities and Note Taking Services addresses this issue. Students who engage in the unauthorized distribution of copyrighted materials may be held in violation of the University's Code of Conduct, and/or liable under Federal and State laws.

Use of Trade Names

Where trade names are used, no discrimination is intended and no endorsement by the World Campus, Outreach and Cooperative Extension, the College of Engineering, or The Pennsylvania State University is implied.

Subject to Change Statement

Please note that this Course Syllabus is subject to change. Students are responsible for abiding by such changes.