Introduction and welcome

Technical professionals write. Why? Is writing an unpleasant but necessary duty? Something your supervisor makes you do? A necessary chore that follows the excitement of solving problems? Or does writing empower your brain? If a map makes you smarter at finding your way, can writing make you smarter at solving problems? Is writing good if it obeys the rules? Or is it good if it creates excitement about your ideas? If feeling powerful, smart, and exciting sounds good, welcome to The Engineering Method of Technical Writing.

I’m delighted to be teaching this course at Tufts. I hope to set you on a path to become a mature, effective, fluent writer. As a mature writer, you will use writing as a laboratory tool that supports and improves your research and development, in much the same way that a software engineer might use a sophisticated programming environment or a powerful computer. As an effective writer, you will produce texts that readers find clear and compelling. And as a fluent writer, you will produce these texts comfortably and easily, without the grinding difficulty or last-minute crunches that trouble many beginning writers.¹

Don’t worry! You may not accomplish all this in the next year, or even necessarily before you graduate. You will acquire tools that enable you to become more effective and fluent right away, and with my help, you will create a plan that will enable you to develop into the writer you wish to be.

Command of writing supports a technical career in any field of endeavor. If you go into academia, your writing will represent you: you will write to become known, to get hired, and to get promoted. If you go into industry, your writing will connect you to your team and help you get the resources you need: you will write to help plan current projects, to document successful projects, and to build support for new projects. And if you become an entrepreneur, your writing will support your company’s success:

you will write to attract employees, to get funding, and to let the world know about your great product.

What will we learn?

I developed The Engineering Method of Technical Writing for scientists and engineers, and I use a science-and-engineering mindset. I teach techniques drawn from research and experiments on how texts and writers actually work—or don’t work. I support you in your own experiments. And I teach not many seemingly arbitrary rules and prescriptions, but rather just a few simple techniques which are known to work. These techniques are founded on two big ideas, both of which have been confirmed by research:

- The proper measure of the merit of a text is the effect it has on its readers.
- The productivity and job satisfaction of professionals who write is heavily influenced by the way they approach and carry out the task of writing.

These big ideas should stay with you long after the course is over. If you apply them to your professional writing, you are bound to succeed.

Most books and courses about writing focus only on the text: the words on the page. We will study writing more broadly. You will advance your understanding not only of texts, but also of writers, and ultimately of yourself as a student:

1. You will master fundamental editing principles that you can apply to the texts you write about your own technical work.
2. You will, through application of the scientific and engineering method, develop working practices that enable you to write productively, comfortably, and fluently.
3. You will assess your own progress and formulate a plan for your future development.

In all three of these areas you will exercise your own judgment as supported by experiments which I will help you design.
To demonstrate the level of your editing skills and the effectiveness of your working practices, you will keep contemporaneous records of your activities:

- To document your editing skills, you will collect texts (really fragments of texts) into a portfolio. Your portfolio will include the results of all in-class exercises as well as some selections from an outside writing project.
- To document your working practices, you will keep a lab notebook.

Expectations for the portfolio and the lab notebook are stated below.

**In detail, what will we learn?**

In this part of the syllabus, I enumerate all the objectives of the course. I do not expect every student to make the same degree of progress on each objective or to reach the same level of mastery of each objective. (For example, if you speak English as a second language, you may not progress as far as a student who speaks English natively.) I do expect every student to make significant progress on (or reach sufficient mastery of) some of the objectives, which I have dubbed “essential.” The essential objectives document what is important for you to know and do by the end of the course. The other objectives are worth being familiar with, but they are not essential.\(^2\)

**Essential objectives**

Here are the essential objectives connected to your ability to assess yourself and develop a plan for your future:

- You will evaluate the efficacy of your initial writing practices, including practices and habits that are not working. You will also evaluate the efficacy of new writing practices learned during the course. Both evaluations will be supported by contemporaneous evidence from your lab notebook.

Here are the essential objectives connected to your ability to develop practices that work for you as a writer:

- Using evidence from your lab notebook, you will show that you have experimented with two or more techniques of prewriting, including at least one that is effective for you. Moreover, you will analyze the experiments after the fact and say what techniques you do and do not find effective. Ideally, you will be able to show that you prewrite effectively and consistently. (Prewriting techniques are discussed in Boice, Chapter 10. Some writers will also find Chapter 9 helpful.)

Note: prewriting is the one area in which I am not asking for contemporaneous evidence. Gathering evidence contemporaneously requires such an analytical frame of mind that your prewriting may be inhibited. So in this one instance, please focus only on the task at hand—prewriting effectively. You can document the results afterward.

- You will evaluate the efficacy of your initial writing practices, including practices and habits that are not working. You will also evaluate the efficacy of new writing practices learned during the course. Both evaluations will be supported by contemporaneous evidence from your lab notebook.

Here are the essential objectives connected to your ability to assess yourself and develop a plan for your future:

- At intervals, you will choose one editing principle from Table 1 of the course handbook; you will demonstrate that you can apply that principle to a short text; and you will assess your own level of mastery. Your demonstration will go first to a peer reviewer and then to me, and we will give you feedback on the accuracy of your self-assessment.

At the end of the year, you will accurately assess your own level of mastery of each of the editing principles in Table 1 of the course handbook. Your assessment will be supported by your accumulated demonstrations and by other materials from your portfolio.

Over the course of this year I will work out detailed criteria for judging levels of mastery of the most essential principles. I do not expect that every student will achieve full mastery of every principle.

- At the end of the year, you will assess which writing practices are most effective for you personally, supporting the assessment with evidence from your lab notebook. Using evidence from your lab notebook, you will also identify your best time of day, favored places and materials, and helpful and unhelpful rituals.

- At the end of the year, you will present a realistic plan for continuing your professional development after the course is over.

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\(^2\)Exactly what I mean by contemporaneous is explained in the part of the syllabus that describes your lab notebook.

\(^3\)The objectives refer to readings by Beck, Becker, Boice, Landes, and Williams. These readings are described in detail in the course handbook.
Other objectives worth meeting

The essential objectives represent my top priorities for your learning. But there’s more worth knowing. Here are some other skills I hope you’ll develop, starting with editing skills:

- You will spot when characters are not named consistently, and you will spot characters that should have names, but don’t.
- You will use the technique of coherent subjects, as described by Williams in Chapter 3, to structure sentences within a paragraph.
- You will be able to analyze a section or chapter by identifying the purpose of each paragraph and judging how well it fulfills its purpose. Later, you will be able to use your analysis to reorganize a text to create better paragraphs and sections.
- You will recognize parallel structure; you will be able to improve deficient parallel structure; and in your own work, you will be able to highlight comparisons using parallel structure. (We will discuss parallel structure in class, and it is a central topic in Williams’s Chapter 8—which unfortunately I have found not so easy to learn from.)
- When possible, you will use singular, not plural.
- You will be able to identify faults in an abstract, and you will be able to produce an abstract that presents the essential information in the paper, as described by Landes (1966).

Here some more writing-process skills that are worth knowing:

- Using contemporaneous evidence from your lab notebook, you will show that you can produce a “zero” or “shitty” initial draft of a text, ideally supported by earlier prewriting. Producing the very first draft of a text is actually more than just worth knowing—it’s essential. And my real objective is that you be able to produce such drafts comfortably and reliably. But the constraints of the college classroom prevent me from making the initial draft an essential aspect of this course. By definition, an initial draft of any given text can be produced just once. In a single academic year, you’ll be lucky if you get one opportunity to write an initial draft of any scope. If you already have a thesis, dissertation, article, or other document in progress, you may have already written an initial draft.

If you can write an initial draft during the course, fantastic. I will do my best to support you, and I will ask you to assess your experience. But if your main writing project is already in progress, I will not ask you to abandon it in order to write an initial draft of something less important.

The initial draft is a challenge for almost every writer, and a number of students report finding help from Beck (2003) or Becker (1986).

- If you have the opportunity to tackle a “zero” or “shitty” initial draft, you will use contemporaneous evidence from your lab notebook to do one of the following:
  - You will show that you can create such a draft in relative comfort.
  - Or you will identify attitudes and practices that you have attempted but that have failed to palliate the discomfort.
- You will describe your thoughts and feelings about writing and how they affect your ability to write. Using contemporaneous evidence from your lab notebook, you will explain how your thoughts and feelings have been affected or managed by the experimental practices and techniques you are learning in class. At the end of the course, you will be able to say how your thoughts and feelings, or your management of those thoughts and feelings, have changed since the course started. Using the evidence from your lab notebook, you will be able to identify the probable causes of any changes in your thoughts and feelings.
- If the essential practices of brief daily sessions and effective prewriting are not sufficient to have you writing fluently, you will explore some of the issues that Boice describes in Chapters 14 and 15, and possibly in Boice’s Introduction to Section II (pages 103–113). Using contemporaneous evidence from your lab notebook, you will describe what techniques you have tried to support more fluent writing, and you will identify which techniques, if any, have helped.

What happens during class?

The Engineering Method of Technical Writing operates on a model that is a cross between a typical graduate seminar and a master class:

- As in a typical graduate seminar, some classes are devoted to discussion. Discussions typically focus on working practices: the attitudes and behaviors that lead to comfortable, fluent writing.
- As in a typical master class, some classes are devoted to a close analysis of one student’s work. The work being analyzed is usually a few paragraphs, although we sometimes work with samples as small as a few sentences or as large as an entire paper section or thesis chapter.

Sometimes, when we need to practice a skill for which no student’s current work is suitable, we instead analyze published computer-science papers.
Why is class structured this way?

Compared with individual instruction, a master class is not only more comfortable but also more effective. You do not focus relentlessly on your own writing. You see other writing at your own level, and you see professional writing. In this context, you can evaluate the utility of the editing principles, and you can decide for yourself what does and does not work. Evaluation and choice of effective technique is the essence of the engineering method.

A master class also helps because it’s easier to improve other people’s writing before trying to improve your own. You will also learn when your work is read by the group. Sitting quietly, you will see where readers do not understand; where they miss the point; and where they feel distracted, bored, or confused. One reader’s reaction might be idiosyncratic, but when a whole group of readers reacts the same way, it is easier to accept that the flaw might lie in the text.

How heavy is the workload?

To quote a former student, unlike everything else I teach, The Engineering Method of Technical Writing isn’t a ton of work. Relative to other courses, there are a lot of things to do, but each individual thing is small. And because the course is spread out over a full year, you have time to learn without disrupting your other work.

The course is designed for people who need to write for their jobs. Maybe you are writing a conference submission, a senior thesis, software documentation, grad-school applications, or a doctoral dissertation. Whatever. You will work on your outside writing using the techniques you learn here. I don’t count those hours against your workload. For many students, the time they spend on this course is time they wind up saving on their writing projects. If you are working on a big project like a dissertation or a first-author paper submission, you can expect to save more time on your outside project than you spend on The Engineering Method of Technical Writing.

Over the course of the year, your workload (not counting your outside project) should average just a few hours per week. Your workload will be highest in the first six weeks, when you are both reading about and practicing new skills. During this time, expect to spend about 4 hours per week outside of class. After six weeks you will have the basic readings under your belt, and you can expect your workload to drop to a baseline of at most 2 hours per week. (If you are a non-native speaker, your baseline workload may be a bit higher.) Two or three times during the year, you will write a one- or two-page essay about your working practices; depending on your skills, preparing an essay may take several additional hours. And at least twice, you will demonstrate your editing skills; preparing a demonstration will also take several hours. Finally, at the end of the year, you will deliver a reflective essay that assesses your progress and your learning and that proposes a plan for your future development. Think of the essay as something you spend a couple of weeks on in conjunction with three or four other courses; that is about the right workload.

What does the workload consist of?

Here are the kinds of work you’ll do during the course:

- You’ll read, but to learn new skills, not to gather information. For the first six weeks of the course you’ll read about 20 pages every week; after that, you’ll read about 20 pages about once a month. The readings are short but not easy. Each reading tells you about a new skill that takes time and practice to learn. Your goal is not merely to know what the readings say, but to learn to do what the readings describe. Our class meetings will support you.

- For most class meetings you’ll complete an exercise in advance, practicing exactly the new skills you will have read about. You will mark up, analyze, and sometimes revise a short text: usually a few paragraphs. A typical exercise is something you can finish in an hour. (If you are a non-native speaker, you may take somewhat longer.) One or two exercises require work with longer texts; for example, when you learn how to write the abstract of a technical paper, you have to read an entire technical paper. These exercises take a little longer.

Once you’ve completed an exercise, you’ll come to class prepared to present some of your work. You’ll also respond to other students’ work.

- You’ll save all your class exercises, as well as periodic samples from your writing project, in a portfolio. Your portfolio requires good record-keeping and organizational skills, but unless you store it as a pile under the couch, the actual time required to maintain it should be negligible.

- You’ll also keep a lab notebook with data about your performance on your outside writing project and any other technical writing you do during the year. Plan to spend 5 to 10 minutes every day recording data in your lab notebook, for a total of one-half to one hour every week.

- For some class meetings you’ll come prepared to discuss readings or to talk about the results of the experiments you will have recorded in your lab notebook. There will also be class meetings where you’ll use ideas in the readings to plan some future activity.

- At two or three points during the year you will write a short essay summarizing what you’ve learned about how to work effectively. These essays help prepare you to write your end-of-year self-assessment.
At intervals starting around January, you’ll demonstrate mastery of an editing skill, which you will apply to one or two paragraphs. You’ll assess your own work, and I’ll ask you to serve as a peer reviewer and assess the work of someone else who is demonstrating the same skill. I’ll then assess your work myself. At need, you can repeat the demonstration—the final version becomes part of your end-of-year self-assessment.

At the end of the year, you’ll write a longer essay explaining what you’ve learned and how you intend to improve in the future, supported by evidence from your portfolio and your lab notebook.

**How will everyone be evaluated?**

My evaluation of your work, and your final course grade, will be based on your final self-assessment (which will demonstrate how well you have met the essential learning objectives for the course) and on your class participation. In detail, here is what I expect:

- You will come to each class prepared for that day’s exercise or discussion.
- When called upon, you will make a good-faith effort to evaluate your classmates’ writing.
- When your own writing is to be discussed, you will provide a sample by the end of the day Monday before class.
- You will not only contribute to discussions yourself, but you will also leave room for your classmates to contribute to the discussions.
- To support your self-assessment, you will build and maintain your portfolio and lab notebook.
- You will have some technical-writing project outside of class, even if it is very small, and you will include samples in your portfolio.
- You will make significant progress on the two principles and two practices that I have deemed essential, as well as the essential self-assessment of your work.
- You will act as peer reviewer for other students’ demonstrations of mastery.

Here’s how you will *not* be evaluated: Nobody’s learning is going to be compared with anybody else’s. Not everybody is starting from the same position, and not everybody speaks English natively. I expect that you will have achieved some learning that is significant for you, and that you can continue to learn and improve going forward. Whether your progress is greater or lesser than the progress of any other student is not relevant and has no bearing on your course grade.

Nobody is going to be evaluated on how long it takes to reach mastery, or on how many tries it takes to demonstrate mastery. If your first demonstration shows only “beginning mastery” of a skill, you are welcome to submit another demonstration, and as long as I can keep up with you, you can keep on submitting until you reach full mastery—or whatever level you wind up reaching. You will be evaluated only on where you end up, not on how you get there.

Finally, here’s how I expect you to evaluate me:

- You should expect that I have put substantial thought and effort into the design and implementation of the class.
- You should expect me to make adjustments to the class schedule, as needed, to provide the best practicable support for everyone’s learning.
- You should expect me to deliver, by 3:00PM Tuesday, any text that has to be analyzed for the following Friday’s class.
- You should expect me to lead productive analysis and discussion in class. You should expect me to create and sustain an environment in which everyone has an opportunity to contribute.
- During class, you should expect me to help synthesize consensus opinions on the day’s questions or text. I should acknowledge not only the majority opinion but any significant minority views.
- You should expect me to share my experience as a mature writer, while recognizing that students’ experience is not necessarily like mine.
- You should expect me to acknowledge the reality of your experience, and for me to support you when you choose to share your experience with others.
- You should expect me, during the term, to provide more detailed guidance on how to evaluate your own mastery.
- You should expect me to be available, on occasion, to review your lab notebook, your portfolio, or your technical writing outside of class.
- You should expect me to give helpful, formative feedback on your short essays.
- You should expect me to exercise fair judgment of your final self-assessment and to provide a fair course grade. In particular, you should expect me to reward evidence of improvement, even if it is not accompanied by full mastery.

**What should my lab notebook look like?**

You keep a lab notebook in order to know what you can do and to know what is and isn’t working for you. Ultimately you will use
your lab notebook to *show me that you know* what you can do and what is and isn’t working. Your lab notebook should record your everyday activity involving any sort of writing. If you sit down to say “now I am going to write for observation in my lab notebook,” you are making a mistake—and you are not getting good data.

Each entry in your notebook should answer these questions:

- Where were you working?
- On what day?
- At what time of day did you start?
- How long did you work for?
- What materials were you working with?
- Which of the four stages of writing were you operating at?
- What were you trying to do?
- What techniques did you apply?
- What thoughts or feelings did you experience while working?
- What things or ideas did you produce?
- When the session ended, how well did it go?

Techniques to be applied depend on what stage of writing you’re at; many techniques apply to prewriting or editing, but fewer techniques apply to active waiting or drafting. Similarly, the units of production are different at each stage: active waiting produces thoughts and ideas; prewriting produces outlines, scribbles, notes, index cards, and a variety of other tangible artifacts; drafting produces sentences or paragraphs; and editing produces both analyses of existing texts and sentences or paragraphs revised.

The list of questions may look long, but you’ll quickly develop your own shorthand. To make it easy for you to use the lab notebook, you’ll design an entry format to your own taste. You decide whether you prefer a paper notebook or an electronic one, and you decide what you want the entries to look like. Here are some expectations and guidelines:

1. Each entry describing your work must be made at the time the work is done, or immediately afterward. (This is what is meant by *contemporaneous*. Do not let hours or days elapse.

2. Say when and where you have worked, for how long, and with what materials. To record places, times, and materials that you use frequently, think about shortcuts or abbreviations.

3. Say what project you are working on and what principles or practices you are experimenting with, if any. When you are working with a particular goal in mind (e.g., start each sentence with familiar old information; understand how thoughts affect my productivity and satisfaction), say so. A goal could be as simple as a stage and a project (e.g., prewriting the introduction to my paper) or you could have a more specific production goal (e.g., revise first paragraph of Section 3 according to the “Who did what to whom” principle).

4. When thoughts or feelings affect your fluency and productivity, that’s valuable data! Record it.

5. Very briefly, record what you produced, e.g., “drafted one paragraph,” or “sketched diagram of experiment.”

6. Close each entry with two very short assessments:
   - How well you met your goal, if any
   - How you felt about the session

These assessments will provide data that you will use at the end of the course, where they will be vital. But you needn’t make them long—with a little experience, perhaps you will develop a tiny scale on which to record this data.

Notebook entries in this form enable you to meet a number of the essential learning objectives of the course:

- You will use your notebook to document the results of your experiments with prewriting and with brief, daily writing sessions, as well as other writing practices.
- You will use the data in your notebook to evaluate the efficacy of your writing practices and to identify which practices are most effective for you personally.
- You will extrapolate from the data in your notebook to develop your plan for continued professional development.

If you have trouble designing a structure for your lab notebook, I can show you a sample entry. And once everyone has had some experience, we will devote a class session to effective use of the lab notebook.

**What should my portfolio look like?**

Your “portfolio” is actually a “writer’s portfolio,” which is not the same thing as a “learning portfolio.” It contains nothing but copies of your work, and its structure is very simple:

- Your portfolio should include a copy of every exercise you have attempted for class.
• Your portfolio should include samples from your work on your outside writing project. Each sample should range from one paragraph to one page in length, and you should take a sample about every two weeks.

• Every copy and sample must be datestamped, and the work should be arranged in chronological order.

Why have a lab notebook and a portfolio?

Keeping both a lab notebook and a portfolio might seem like a bit much. Why not have just one thing? Because these two instruments are created and used in different ways and for different purposes:

• To create your portfolio, just drop in every class exercise, plus a biweekly sample of your outside work. No thought is required, just a reminder on your calendar—your brain can remain in the Off position.

• To create your lab notebook, you need to engage your brain in the On position, and you need to do it every day.

• The value of the portfolio does not lie in its creation. The portfolio provides its value when it is reviewed at the end of the term: it enables you to assess your progress.

• The primary value of the lab notebook is to help you be aware of your thoughts, feelings, attitudes, and practices—and how they affect your job satisfaction and your productivity. While the lab notebook also provides value at the end-of-term assessment, that value is secondary.

• You will use the portfolio to assess your mastery of editing principles. This assessment is primarily objective and is based on visible things you have written down in archival form.

• You will use the lab notebook to identify writing practices that work for you. This assessment is primarily subjective and is based on invisible things that have happened in your head.

The creation, value, and use of the lab notebook and portfolio are so different that they are best kept separate.

How does self-assessment work?

In gradual, easy steps, you’ll work your way from preliminary self-assessment to a complete, final assessment of your own work.

• In the middle of the first term, you’ll use observations from your lab notebook to send advice to your future self about what working practices do and do not help you write effectively.

• Toward the end of the first term, we will share example entries from our lab notebooks, and we will learn how others record information about working practices.

• At the end of the first term, you’ll review your mastery of editing principles, and you’ll fill out a simple form that shows where you think you are. That form will help you and me plan your demonstrations of editing skills. You’ll build this part of your assessment from your portfolio, including work done both in class and outside of class.

You’ll demonstrate mastery of one editing skill at a time. You’ll choose a short text from your portfolio, choose an editing principle from the handbook, revise the text according to the principle, and narrate an explanation of your revision. Your original text, revised text, and explanation will then undergo three stages of review: self review, peer review, and instructor review. These stages are described in detail in the handout Self-Assessment of Editing Skills. In my instructor’s review, I’ll give you a summative assessment:

• I’ll judge your level of mastery as beginning, partial, sufficient, or full.

• I’ll judge whether the evidence is convincing, weak, or insufficient for a meaningful answer.

If after the assessment you believe you can improve your mastery, I’ll encourage you to repeat the process with a new text and a new peer. You keep going until you demonstrate the results you’re capable of. And at the end of the second term, your accumulated demonstrations will form your self-assessment of writing principles.

For writing practices, I’ll provide detailed instructions on assessing each individual practice. The evidence for your self-assessment will come from your lab notebook.

What books and such do I need?

The following materials are required reading for the class:

• The 2016 version of Learn Technical Writing Using the Engineering Method by Norman Ramsey. This handbook is written for students who are going to study technical writing in an extracurricular group, rather than as part of an official class. But the principles, practices, and exercises are all the same as the ones we will be using. And the last section of the handbook recommends and discusses a number of other readings, both required and optional.

• Advice for New Faculty Members by Robert Boice, 2000.
The 1995 edition of *Style: Toward Clarity and Grace* by Joseph M. Williams. There are many similar books that list Williams as an author, but the work published after Williams’s death is not always superior. We will therefore work with the original edition, even though it is out of print.

Please buy both books. Although out of print, Williams is available through the usual channels.

There will be a few other short readings which will be handed out in class. If I can do so without violating copyright, I will also put these readings on the web.

**What do I need to pick up on my own?**

As in every class, there is material that you need to complete the class successfully, but that is not actually covered by the readings or the meetings. Most of this material would probably be considered a prerequisite for a high-level writing class, but if you’ve missed any of it, you will need to pick up on your own. Here’s what I expect that you know and can do:

- You can read a computer-science research paper.
- You have mastered basic sentence structure and standard punctuation and spelling.
- You have a reasonable command of proper English usage. (This is a huge subject, and my expectations are minimal—The Engineering Method of Technical Writing is not about grammar or usage. If you can avoid breaking the “real rules” on page 180 of Williams, you’ll be fine.)
- You know the names of the parts of speech (noun, verb, adjective, adverb, . . . ) and you know a few essential grammar words like “singular,” “plural”, “agreement,” and “first person.”
- You know what a Roget-form thesaurus is and how to use one. (If you don’t happen to have any experience with Roget’s way of organizing a thesaurus, it’s a fantastic tool for helping you find just the right nouns and verbs to use to describe your work. There’s a decent 1911 thesaurus online at the University of Chicago. By comparison, a thesaurus in “dictionary form” is a waste of time, money, and paper.)

If you want help with anything, just ask.

**What else can I do to succeed?**

My past students have some advice for you. Here’s what they say, liberally paraphrased:

**Advice from my most successful students**

One of my most successful students advises you as follows:

- Welcome to the “Engineering Method of Technical Writing” class! I took this same class from 2014 to 2015 and really enjoyed it. Thanks to this class, I was able to establish my own writing routine and gain confidence in writing. This note is to share my experience, hoping it can help you enjoy this class as much as I did.
- Be patient! I always had to remind myself of this. What did I have to be patient with?
  - First, writing itself. As you will soon learn in the class, we have to prepare ourselves before drafting. This preparation step is also a part of the writing process even though it may not seem like writing. In fact, I believe this is the most important part of writing and being patient is the key to this process. Take your time until you have a good story with enough contents for your writing.
  - Second, I had to be patient with reading. At some point during the class, I felt that I was reading more than writing and started doubting the benefits of reading in terms of improving writing skills. However, I decided to take those reading exercises as opportunities to learn more about what my readers would expect. I played the role of my own readers and listed things that I wished for from a writer. The list later served as a great guideline to improve my writing. Patience was just one of many things that I learned from the class. I find this to be crucial, and I have no doubt that I benefitted from it the most. I hope you all can pick up new skills and better existing ones through this class to become a better writer. Good luck!

Another highly successful student says,

- Since I took the class, I have found that clear and productive writing could be quite pleasant. More importantly, I learnt that such pleasure of writing didn’t come as randomly as I had thought, and there actually existed recipes to make writing pleasant, though the recipes might differ for different person. Throughout the class, Prof. Ramsey led me to find my own recipes.
- My opinions on the course materials changed drastically while I engaged more with the class. It is this process of engaging that benefited me the most in many different perspectives. Thus for new students I suggest that despite possible confusion or distress, trying to engage more will always be good.

**Advice about mindset**

On how to think about being a student in the class:
• On a high level, it will help you to come in with the mindset that success isn’t necessarily “mastery of the material” as it is in, say, algorithms. First, I’m not really sure you can ever really “master” writing, and second, you are likely to improve only very gradually—so gradually that at any given moment, you may feel as if you’re not making progress. While I think the mindset of gradual learning is fairly typical of graduate-level courses, it can still be a challenging mindset to adopt. I remember Norman saying something similar to this at the beginning of the class, and now that I’ve had a few years to digest everything I agree more now than ever. Maybe it’s the PhD candidate in me, but three years out, I still feel like I have a lot to learn.

• Keep an open mind. Throughout this course, you will be asked to experiment with different techniques for writing. Even if you “know” that a particular technique won’t work for you, I encourage you to try it anyway—you might end up learning more about the way you work.

Advice about preparation

On ways you might wish to prepare:

• It helps if you’ve looked at a lot of technical writing, so that you have seen both good and bad examples (even if you can’t yet articulate why something is good or bad).

• Brush up on your grammar. It will help you when you’re trying to talk about the way a sentence is put together.

Advice about class sessions

On the class sessions themselves, and the role of your work and your classmates’ work:

• Submit your work for review by the class. If I could have done one thing differently, I would have tried to get more of my writing critiqued during group discussion. The few times that I did do it were immensely helpful.

• You may be embarrassed about your writing. Don’t worry. We are all embarrassed about our writing. Recognize that embarrassment is natural, and don’t let it stop your from sharing your writing with the class. Feel the fear and do it anyway.

• When commenting on other students’ writing, make your criticism constructive. A class like this needs criticism, and it can come from any member of the class, but it must be constructive. When all criticism is constructive, it fosters a nurturing environment in which everyone can learn.

• During class, don’t be afraid to speak up and be wrong. A large component of this course is group discussion. Group discussion works a lot better when there are more people willing to contribute. The more you put in, the more you’ll get out.

Advice about the lab notebook

On the lab notebook:

• I tried to run separate writing sessions solely for the lab notebook instead of recording whatever writing activities I had done for the day. This turned out to be a mistake.

• I learned from class discussion that my lab-notebook entry should be a record of my everyday activity involving any sort of writing, not of separate activities dedicated to the entry. From this week, I added entries that really reflect my own writing and as a result, my lab notebook started having richer contents.

What to do between classes

On what you do outside of class:

• The most important thing—and a way to ensure that the class complements your other pursuits rather than getting in the way of them—is to take the practice of brief daily sessions seriously. Pick a time every day, disallow other commitments during that time, and pre-write or write. I found this made writing my dissertation much easier (along with other techniques, such as leaving myself bread crumbs).

• The most helpful (and perhaps one of the most challenging) thing I learned from the class was about the benefits of writing consistently.

• To practice what you are learning, write frequently, even if it is just many drafts of the same thing.

• If you are reading any technical documents in other classes, or outside of any class, take time to analyze and critique a little bit of the writing.

What else have past students said?

When I asked my past students for advice, they had not only narrow advice, but some broader reactions to the class, as well as ideas that go beyond what we can cover in class. Here are some of those broader reactions:

4NR: A good path toward constructive criticism is to make sure that anything you say about the text is absolutely verifiable by a decision procedure. For example, you can say “the technical term exfoliation appears in the third sentence in the position of old information, but this is actually the first time this word is used in the text.” Anything else you say should be not about the text, but about your reaction to the text.
• I actually got a lot out of this class. And unlike everything else Norman teaches, it’s not a ton of work.

• In the class we talked a lot about how prewriting and brief daily sessions could help circumvent writer’s block. I’ve also found that through gradual writing I have been able to make better revisions faster. “Writing in brief daily sessions” was (and continues to be) one of the more difficult writing practices I’ve tried to get under my belt. I think it’s something that every technical writing class should stress. Even if it’s just the jotting of ideas and not actual “text,” I can’t emphasize enough how much incremental writing has helped me.

With that said, I’ve found all of the practices that we covered in the class to be helpful. I’ve modified “use index cards” in my own practice to be “use scratch paper” to help rearrange, merge, and separate sections.

• One thing I didn’t pick up or fully understand until I finished my first, first-author paper was Exercise H: Structure of a section. My current advisor, from day 1, has drilled into my head, “What’s the purpose of your paper (e.g., an algorithm, a system, study, etc.)? Or, what is your contribution? What are the parts you need to include to make your contribution?” And so on, going down into section-level and then paragraph-level purpose questions. These questions have not only helped frame my writing, but have helped me think critically about my research and its direction.

And some ideas beyond class:

• Another useful exercise I picked up from a co-author was being forced to describe a citation, paragraph, etc. in one sentence.5 If I wasn’t able to do that, it almost always meant that the portion of writing in question wasn’t fully formed. Exercise G does this, and I also think it’s a useful exercise to do in-brief for the person submitting the text for class review in addition to the submitter’s classmates.

• A final bit is the value of reading exemplar papers, whose type of contribution is similar to your writing goals. By reading these papers a writer can pick and choose what structural elements work and what don’t. We did this a bit in class, but I found it became most useful only after reading many papers in my field in this fashion. The process of analyzing paper structure can be particularly useful in computer science as algorithms, systems, and user-centric papers are all structured very differently. When I started grad school I started keeping tabs of papers that had structural strategies I liked. I think it’s helped me find my own style of writing.

5This technique is closely connected to the “Where’s the point?” question that Williams discusses in Chapter 6, which we won’t be reading. —NR

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