ENGR. 240

Technical Writing = Ethical Writing = Clear Writing:

Plain Language

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PLAIN LANGUAGE: The Three C's of Professional Writing

CLEAR
CORRECT
CONCISE

LEARNING OUTCOMES: Once you've gone through these slides (including the practice activities!) you should be able to

1. Recognize the value engineers place on clear, concise, plain writing
2. Explain and apply core principles of plain language:
   - Simple words when simple words will do the job
   - Active voice
   - Strong action verbs
   - Eliminating redundancy

Engineers Figure out "How Things Work": 40:20:40

Engineers like to know how things work . . .

In Engr. 240, you'll learn how **clear communication** works

Use each **step** of the **writing process** in a conscious, self-reflective way to encourage you to **clarify your thinking** so as to better **communicate your plans**, goals, and ideas to clients, bosses, colleagues, and other stakeholders. They, in turn, can more easily follow, and hence act, on those ideas

The more effectively you **communicate** your message, the better you enable your audience to grasp what you're saying and so make sound, **informed decisions**, act on your recommendations, and implement your ideas!

The Learning Commitment . . .

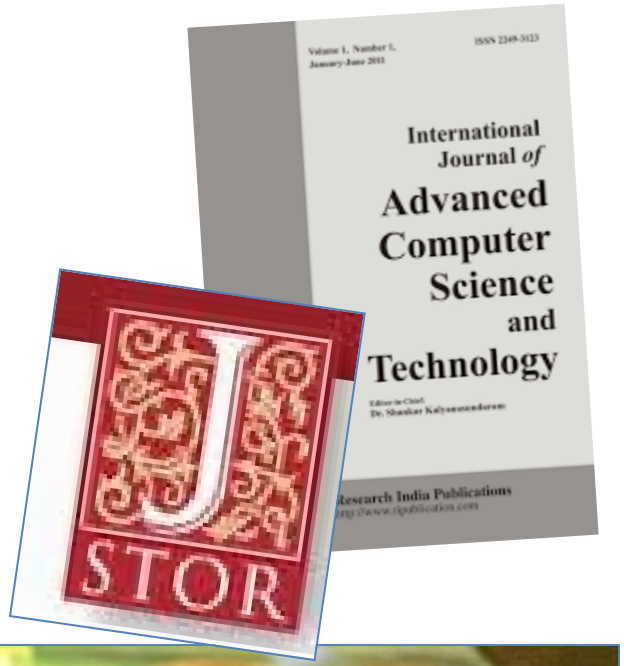
To achieve clarity in your multiple communication tasks as engineers, commit to the following:

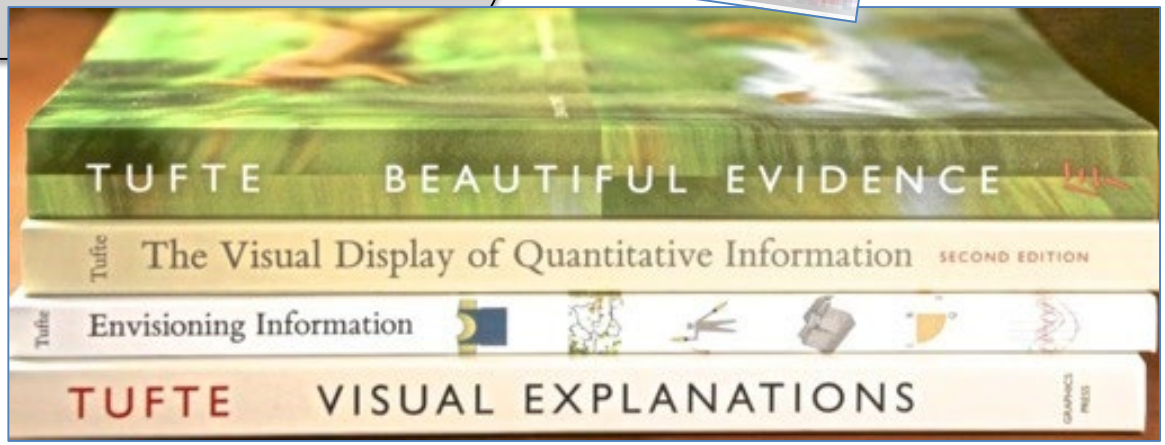
- **Learn, recognize, and practice rhetorical strategies and formats used by technical professionals, which you can then apply to produce quality technical writing of your own**
- **Identify your strengths as a writer and capitalize on these: know what you're doing well and keep doing it!**
- **Become aware of any unconscious incompetencies or weak skills as a writer: an important moment in any learning process! Get to know what you need to practice, work on, and improve—rather than perpetuating bad habits. Self-reflection and self-review will be a key to doing well—in *all* your learning**

Engineers Insist Engineers Must Write Clearly . . .

"Serious problems require a serious tool: written reports. Meetings should center on written reports on paper . . . A good model for the technical report is a scientific paper or commentary on a paper published in substantial scientific journals such as *Nature* or *Science*"

Dr. Edward Tufte, Professor of Political Science, Statistics, and Computer Science at Yale University





CEAB Requires You to Work on Communicating Clearly in Order to Graduate

"The engineering profession expects of its members competence in engineering as well as an understanding of the effects of engineering on society. Thus, accredited engineering programs must contain not only adequate mathematics, science, and engineering curriculum content **but must also develop communication skills** . . . and the capacity for life-long learning."

Canadian Engineering Accreditation Board

CEAB conducted its most recent accreditation of UVic's Engineering Program in 2018 and will return again in 2019, part of its ongoing round of universities to ensure quality of Engineering degree programs

The Faculty's Computer Science Program Agrees!

Here's the Computer Science Department's description of its Undergraduate program,

> "The undergraduate degree requires a mix of courses in the fields of computer science, software engineering, mathematics, and **technical writing . . .**"

And with good reason . . .

Plain Language Promotes Web Accessibility

Plain Language as a key communication concept is strongly advocated by Chuck Leturneau , web-master and co-chair of the World Wide Web Consortium Working Group, founded by Tim Berners-Lee in the 1990's (and still ongoing), and supported by companies like IBM, Microsoft, Adobe, America Online, etc.

Tim Berners-Lee and Chuck Letourneau helped develop the Web Content Accessiblity Guidelines specifically to "address barriers to understanding . . ."

The Consortium's conclusion?

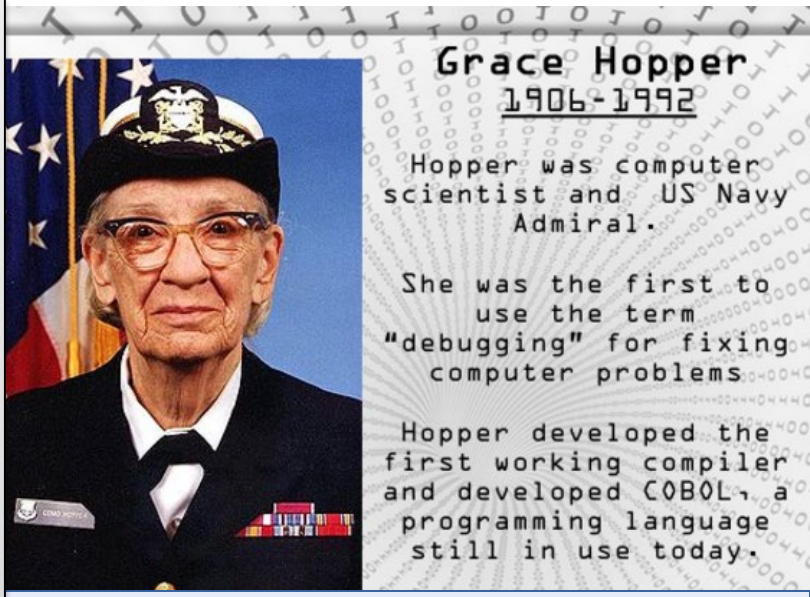
"Using clear and simple language promotes effective communication"!

Plain language also makes for excellent programmers . . .

Grace Hopper (PhD Mathematics, Harvard, 1934) excelled at translating scientific problems involving trajectories, fluid flows, and explosions into mathematical equations and then into **ordinary English**. This talent helped make her an excellent programmer:

> "I learned the languages of oceanography, minesweeping, proximity fusers, biomedical stuff; I had to learn their vocabularies in order to be able to run their problems. I could **switch my vocabulary to speak highly technical for the program, first, and then tell the same things to managers a few hours later but with a totally different vocabulary**. Innovation requires articulation"

Walter Isaacson, *The Innovators: How a Group of Hackers, Geniuses, and Geeks Created the Digital Revolution* (2014); author of *Steve Jobs* (authorized biography)



First programmer for Harvard's Mark I in 1944, Hopper was commissioned to write the first-ever programming manual. It turned into a 500 page book, written in **"simple, crisp, clear sentences"** (Walter Isaacson)

US Federal Law Mandates Plain Language for all Government Documents

"By using Plain Language, we send a **clear message** about what the government is doing, what it requires, and what services it offers

Plain language documents have logical organization; **common everyday words**, except for necessary technical terms; 'you' and other pronouns; the **active voice**; and **short sentences**"

Bill Clinton (1999), memo making Plain Language a requirement for government employees

Re-instituted by President Obama in the Braley Bill (2010):

"The Plain Writing Act requires the federal government to write new publications, forms, and publicly distributed documents in a **clear, concise, well-organized** manner that follows the **best practices** of **plain language** writing"

So Does the Canadian Government . . .

The Federal Government's *Directive on the Management of Communications* (Sec. 6.10.3) stipulates that heads of communication are responsible for ensuring their communications with the public are

"Clear, timely, accurate, accessible, and written in plain language"

Many Professional Bodies also Mandate Plain Language

From: ATTW-L
To: attw-l@attw.org
Subject: [ATTW-L] guide for doctors writing to patients
Date: September 4, 2018 10:22:10 AM
Attachments: ATT00001.txt

The Academy of Royal Colleges of Medicine has released a brief guide that encourages doctors to write in plain and simple language to their patients. The guide cites a standard of Good Medical Practice: "You must give patients the information they want or need to know in a way they can understand."

The file is available at
http://www.aomrc.org.uk/wp-content/uploads/2018/09/Please_write_to_me_Guidance_010918.pdf

“Simple, Crisp, Clean Sentences”

Use Short Sentences and Everyday Words whenever possible

The following slides give you **Plain Language** tips to help you convey technical information in a **clear**, **concise** way, so it is **accessible** to an audience of non-expert stakeholders

Action Prompt: Use Everyday language

Revise the instructions below using **plain everyday language** (aim for about 20 words)

TIP: Instructions are easy to follow when they're expressed plainly and simply, *in the sequence in which they're performed*

When the process of freeing a vehicle that has been stuck results in ruts or holes, the operator will fill the rut or hole created by such activity before removing the vehicle from the immediate area. (36 wds)

You'll find revision **ACTIONS** like this on upcoming slides; "answers" or possible solutions are always provided on the slide *immediately following*

Try doing the revision actions FIRST, before looking at the solutions . . .

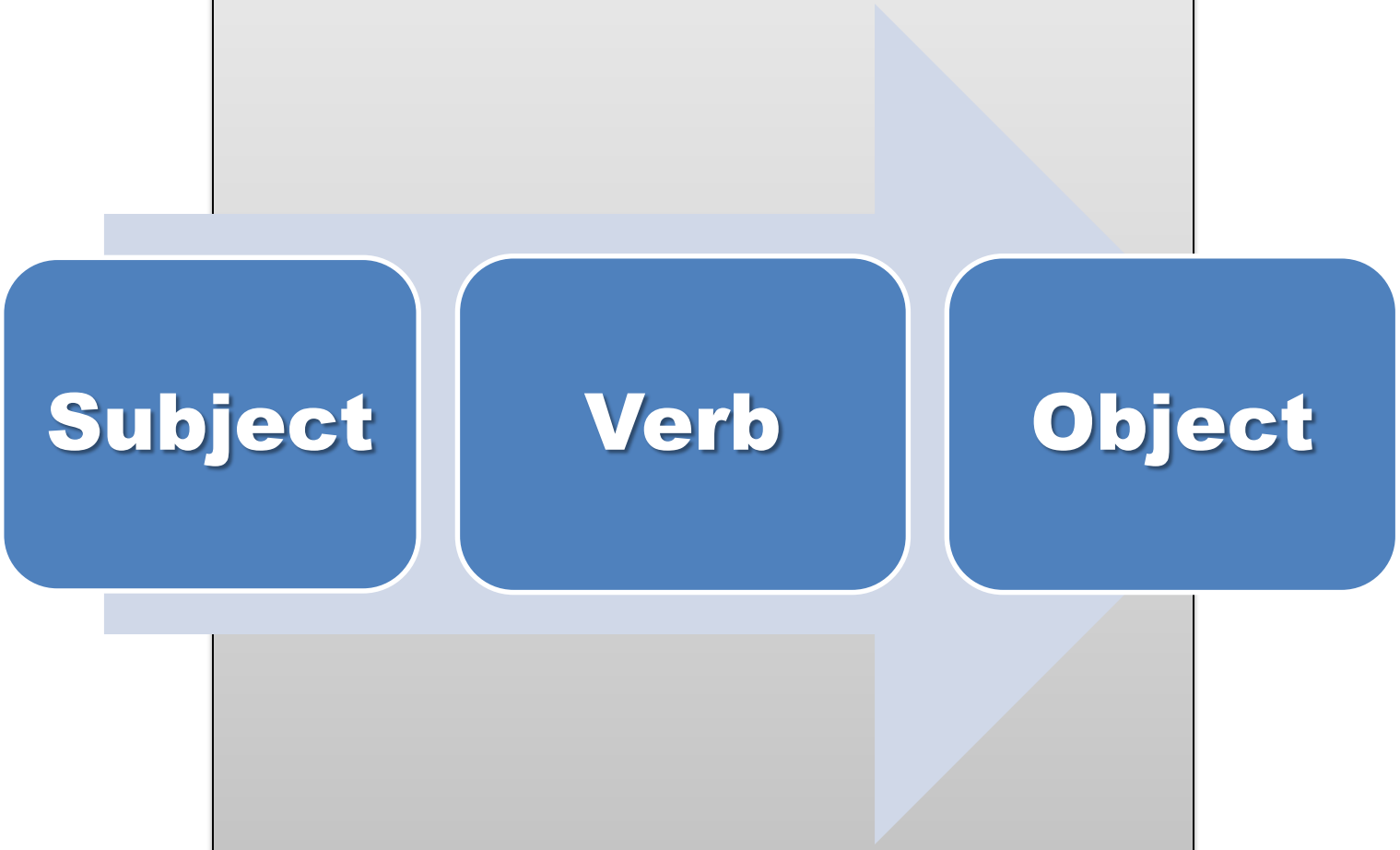
Possible Solution . . .

If you make a hole while freeing a vehicle that's stuck, fill the hole before driving away. (17)

See how clear and simple that is?

TIP: Prefer to Use the **Active Voice**

The active voice is the “natural” structure of spoken English:



Subject → verb → Object

Every English sentence aims answer this key question:

Who is doing what (to whom—or to what)?

Passive sentences (sometimes intentionally) obscure the answer to this question, hence enable individuals and organizations to avoid accountability: they "hide" the actor (the "who" of an action), leaving information gaps:

- Mistakes were made → [who made mistakes?]
- There was a malfunction → [who or what caused it?]
- The software error was missed → [who missed it?]

Active Voice = Clear Actors and Actions

Active Voice = Subject → Verb → Object

The subject or "actor" needn't be a person: it can be an animal, object, organization, or abstract concept:

- The dog chased the ball
- The technician checked the results
- The Committee approved the proposal
- Accounting made mistakes
- Our software engineers improved the security of the program
- The blueprint proved useful in setting up the project time-line
- Approval for funding came just in time to allow for product development.
- The decision made sense
- Ongoing learning around "best practices" in coding results in better-designed software

TIP: Learn to Recognize Active versus Passive Voice

1. **Check that your sentences open with a clear subject: a grammatical ACTOR, someone or something *doing* something**

2. **Check that an action VERB appears in the first few words of your sentence, following the actor**

   Passive voice tends to rely on weak "is" or "has" verbs—verbs that don't convey an *action*

3. **Look out for the preposition BY as this often signals the passive voice** (Instead of being the actor, the actor is *acted on by* something or someone—and appears at the *end* of the sentence, rather than **at the beginning**)

TIP: Recognize "by" prepositions as signaling Passive Voice

Check **who is doing what** in the following sentences, then place the actor at the beginning of the sentence, revising each sentence from passive to active voice:

- The technical report was read **by** the Director (8 wds)
- The printout should be reviewed **by** the technician each morning (10 wds)
- The software will be examined **by** our top expert (11 wds)

KEY TIP: Keep subject and verb together, and place them at the start of the sentence!

Possible Solutions . . .

- **The Director** read the technical report **(6 wds)**
- **The technician** should review the printout each morning **(8 wds)**
- **Our expert** will examine the software **(7 wds)**

TIP: Get Rid of Weak "is" Verbs and Empty Subjects

Eliminate **THERE IS** and **THERE ARE** phrases (known as false or empty subjects). Not only are they "empty" subjects, they rely on **weak linking verbs** like **"is"** or **"are"**— rather than strong action verbs

There is a coaxial cable connecting the antenna to the receiver (11 wds)

REVISED:

A coaxial cable **connects** the antenna to the receiver (9 wds)

The revised version is more concise and replaces the weak *is* verb with a strong action verb, *connects* . . .

TIP: Get Rid of Weak "is" Verbs and Empty Subjects

The following sentence* presents a conclusion about the experimental results of a study of liquid-jet-gas pumps:

> **An important conclusion to be drawn from the result is that there is a correlation between the mixing length and the volumetric flow.**

KEY TIP:
State WHAT is, not THAT it is

"is that there is" is an empty phrase; that something "is" goes without saying!

The important thing should be the conclusion itself (what the result demonstrates)—not the fact that it was *extracted*

ACTION: Prune the above sentence, switching from passive to active voice and expressing the result via a strong action verb . . .

* Source: *Hart, Engineering Communication. 2nd. Ed*. Prentice Hall

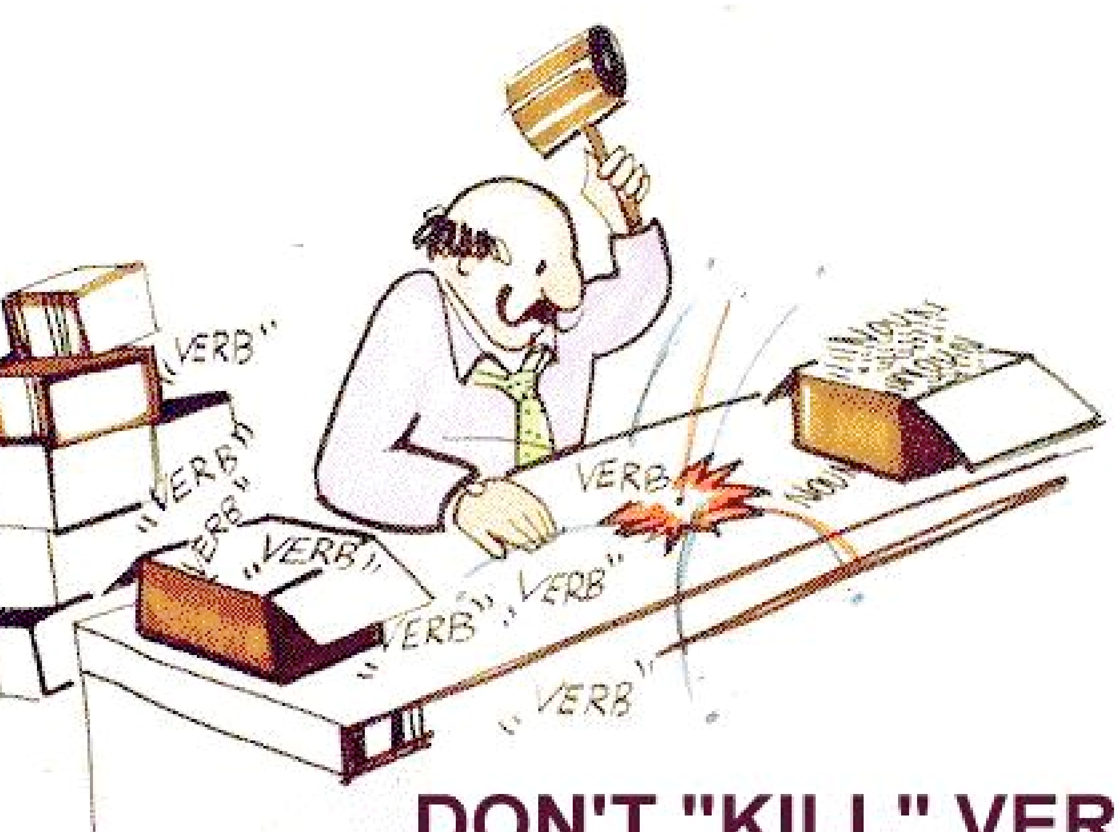
Possible Solution . . .

The result demonstrates a correlation between mixing length and volumetric flow

Clear Subject (the main topic for attention)

Strong action verb

Tip: Avoid Clumsy Noun Strings – Stick to Verbs!



DON'T "KILL" VERBS BY TURNING THEM INTO NOUNS

Often writers take a perfectly good **verb**—an **action word**—and turn it into a lifeless noun, "killing" the main action

Keep sentences **dynamic** and **action-oriented** by focusing on **VERBS**

Don't Kill the Verb . . .

When you have a noun ending in –tion or –ment, turn that noun into the main verb of your sentence:

→ Give **consideration** to the possibility of a career change (9 wds)

→ **Consider** a career change. (4 wds)

→ The author provides a **description** of . . .

→ The author **describes** . . .

→ This example is **illustrative** of…

→ This example **illustrates . . .**

→ We conducted an **investigation** of . . .

→ We **investigated** . . .

→ They have a **requirement** that . . .

→ They **require** that . . .

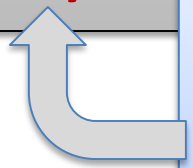
TIP: Get Rid of Lifeless Noun Strings

Lengthy **noun strings** (names of **THINGS** piled on top of each other with no break) create awkward, unnatural-sounding sentences, weakening your message, or even making it unclear and ambiguous

To revise for clarity and break up lengthy noun strings, focus on supplying **action verbs** and **prepositions** (short linking words like *to; of; at; on; for; in; about*)

ACTION: Create a **plain language** version of the following sentence. You may end up with a **slightly longer** sentence than the original, because you need to add prepositions, but the bonus will be greater clarity for your reader:

- There is a growing awareness of employee organizational creative capacity



This sentence is simply confusing! Try your best to revise it into something that makes sense . . .

Possible Solutions . . .

Depending on what sense you made of the original noun string, you could revise the statement in a variety of different ways:

- It is evident that employees can organize themselves in creative ways
- We recognize employees' creative capacity for organizing their work
- Employees have a strong capacity for creative organization

Writing Prompt: Get Rid of Lifeless Noun Strings

Figure out what the following noun strings are trying to say, then revise the sentences using plain language principles to make the meaning clear and straightforward:

ACTION: Focus on supplying **verbs** (action words) and **prepositions** (linking words) to break up the following noun strings

- **Position acquisition requirements are a combination of university graduation and increasingly responsible management experience.**
- **His job is regional database systems troubleshooting handbook preparation.**

Possible Solutions . . .

- Qualifications for the position include a degree and management experience.
- The job requires a degree plus management experience.
- His job involves preparing a handbook for troubleshooting regional database systems.
- He is tasked with preparing a handbook to problem-solve glitches in local databases.

TIP: Get Rid of Lifeless Noun Strings

ACTION: In the sentences below, perfectly good **verbs** have been NOMINALIZED (turned into noun strings—things, rather than actions). Replace nominalizations with the verbs "hidden" in the nouns:

1. We will make a recommendation to implement X
2. Let's present an argument in favor of the first option
3. We will need to offer a qualification to our position
4. Please perform an analysis of our security controls
5. Your product must exercise conformity to industry standards
6. We must undertake preparations for planning to address contingencies
7. We need to find a solution to the problem
8. We must make a decision about available software options

Possible Solutions

1. **Recommend** implementing X
2. Let's **argue** for the first option
3. We should **qualify** our position
4. Please **analyze** our security controls
5. Your product must **conform** to industry standards
6. We should **plan** for contingencies
7. We need to **solve** the problem
8. We must **decide** about available software options

TIP: Use Single Words instead of Phrases

Avoid ~~needless~~ redundancy

It is clear that ….	→	Clearly….
It is logical to assume that….	→	Logically….
It is realistic…	→	Realistically….
It is unfortunate that….	→	Unfortunately….
In view of the fact that…..	→	Because….

Categories of Redundancy . . .

Wordy version	*Simpler version*
subsequent to	after
in the event	that is
in my own personal opinion	I believe…
due to the circumstance that	because
it would be advisable to	we should
in close proximity to	near
at that point in time	then
It has the ability to	it can
with reference to the fact that	concerning, regarding
a large number of	many
within the realm of possibility	possibly

TIP: Combine Sentences

Combine sentences to avoid redundancy. Use the least words possible without sacrificing sense:

It ~~is important to~~ avoid padding your writing with redundant words ~~that are unnecessary~~ (14 wds/ reduced to 7 wds)

- **The policy has three benefits to the community. The first benefit is that it increases funding to those in need. The second is the jobs that it provides. The third benefit is that it creates stronger ties to the community.** (37 / aim for 25 words or less)

- **There are some drawbacks with diesel engines. They are noisy, they are difficult to start in cold weather, they cause vibration, they give off an unpleasant odour, and they cause sulphur dioxide pollution.** (32 / 20 words)

ACTION: Try combining the above sentences to eliminate wordiness

Possible Solutions . . .

The policy benefits the community in three ways: it increases funding to the needy, creates jobs, and strengthens ties within the community. (37/22 words)

Drawbacks to diesel engines include noise, difficulties starting in cold weather, vibration, odour, and sulphur dioxide emissions. (32/ 17)

Beneficial Outcomes

These slides, together with upcoming practice activities in class, will help to

- Get you consciously thinking about clarity and style when **revising upcoming assignments**
- Get you successfully set up to complete the **Mid-term Style Matters Quiz** in week 6 of the course
- Ease communicate with **stakeholders** in the workplace, so they can **understand** what you're saying, be **persuaded** by your message, and **act** on your ideas and recommendations