

Argumentative Essay Common Mistakes and Writing Tips

The main things considered when grading homework assignments for this course are as follows:

- Was an argument made? (e.g., Did the essay specifically indicate who was at fault?)
- How convincing is the essay to the reader? Was there adequate evidence and analysis to support the thesis of the essay?
- Did the essay follow standards for formal writing (e.g., proper grammar, no informal speech, no colloquial phrases, etc.)?

General Ideas

- **Introduction and thesis**
 - The introduction is the most important part of any paper. It motivates the reader, states the main objective, and outlines your argument.
 - Make your thesis clear and concise. Ambiguous terms and run-on sentences provide too many opportunities for misinterpretation and confusion. Do not force the reader to guess what your points are throughout the essay.
- **Avoid ambiguous terms**
 - In general, avoid using vague terms or demonstrative pronouns such as “this.” Though it may be clear to you as the author, it can be confusing to the reader. For technical writing, it is best to avoid ambiguity. Be specific about what you are referencing. Leave no room for misinterpretation.
 - Using unambiguous terminology is particularly relevant for this class, in the context of writing software requirements.
 - Other words to avoid: *these, they, it*, etc.
 - Example:
 - **Ambiguous:** Both AECL and the FDA are to blame for any deaths resulting from the Therac-25. When notified about the problem, they insisted it was not software.
 - **Specific:** Both AECL and the FDA are to blame for any deaths resulting from the Therac-25. When notified about overdosing problems with the Therac-25, AECL insisted that software for the Therac-25 could not be at fault.
- **Avoid passive writing**
 - Indirect phrasing weakens your argument.
 - Phrases to avoid: *in fact, it is true that, these days, in regards to, what appears to be, in my opinion*, etc.
 - Example:
 - **Passive:** Apparently, hardware safety interlocks were removed in the Therac-25, thus if the software fails, there is no backup safety procedure to prevent accidental radiation dosage to the patient.
 - **Less passive:** Hardware safety interlocks were removed from the Therac-25. Thus when the software failed, there was no backup to prevent accidental radiation dosage to the patient.
- **Big blocks of text**
 - Have you ever tried to read and debug source code where an entire program is written as one block of code? Yeah, not fun.

- Just like coding, you should break up your writing into sections. Each section should represent one point (paragraph). When the point is made, try to include a transition to connect each paragraph so that the essay can flow smoothly.
- **Be concise, avoid run-on sentences**
 - Avoid long, over-complicated sentences. Your points are more likely to get lost in a long and complicated sentence. Break up your sentences. Be specific about what you are referring to. Get to the point of the argument.
 - Again, in one line of code, you do not do $x = x+1$, $y = y+1$ on the same line. Each line should represent only one idea. If there are multiple points, then readers will get confused!
- **Transitions**
 - Transitional phrases can significantly improve the flow of a paragraph/paper.
 - Consider the following sentences:
 - The operators are at fault for failing to ensure the safety of their patients. The operators also did not seek information from the error messages from AECL. The operators are at fault.
 - The operators are at fault for failing to ensure the safety of their patients. Furthermore, the operators did not seek information from the error messages from AECL. As a result, the operators are at fault.
- **Omit irrelevant information/writing.**
 - Have you ever looked up a cooking recipe online? They can spend pages discussing history, about how the recipe is from their great-great grandparents, and finally end with a half-page recipe. Do not write essays like this. Nobody cares about the history of the recipe, just get to the ingredients!
 - For each point/paragraph, ask how does each statement relate/help the argument? If it does not, then remove it.
 - Useless or redundant sentences can make your essay confusing to read.
 - See the outline section! An outline will really help make writing easier (not just academic essays, but any document in general).
- **Appealing to emotion**
 - Avoid using emotionally charged words (e.g., *sad*, *tragic*, *unacceptable*, *outrageous mistake*...). In journalism, writers may appeal to emotions to try to influence a reader's opinion. Technical writing should be objective. We write to inform, not impress. Use a reasoned argument that enables the reader to come to your intended, logical conclusion.
 - Be assertive about your claims. Choose a good argument, find evidence, and support it with concrete analysis.
- **Avoid using first person in formal academic writing**
 - It is implicit that the contents of the essay reflect the writer's position.
 - Provide appropriate references to support your position.
 - The point of your essay is to inform the reader through objective facts and reason. The reader should be more concerned with the content of your argument. If your argument is convincing enough, then you should not tell the reader that you believe it.
 - Example:
 - **Before:** I believe safety critical systems must be thoroughly tested before release.
 - **After:** Safety critical systems must be thoroughly tested before release.

- **Empty claims:**
 - Avoid bold claims that are not supported or are opinionated.
 - Example:
 - **Unsupported/opinionated:** “Overconfidence is a sin and has no place in developing high assurance systems.”
 - This is a strong claim. Avoid using absolute terms unless you provide reasonable evidence to support your claim (i.e., a citation or logical proof).
 - Also, avoid ambiguous and informal terms such as “sin” in this example. Do not assume the reader understand what you mean by this term. Be more specific and objective.
 - **More reasonable/objective:** “Developers of high assurance systems should not be overconfident in their system, since a small mistake can cause damage to ...”.
- **Acronyms (Important)**
 - Expand an acronym whenever it is first introduced. For the remainder of the document, the acronym can be used. Do not switch back and forth. Do not redefine the acronym later in the writeup.
 - Example:
 - Atomic Energy of Canada Limited (AECL) created the Therac-25..., AECL failed to report...
- **Excessive use of quotes**
 - The purpose of an essay is to provide your own argument. For your argument, you should have an overall objective, where you make claims and provide supporting evidence to reach your intended conclusion.
 - Direct quotations should and only be used as supporting evidence and should be used sparingly (i.e., when the quote is particularly unique/novel and cannot be paraphrased).
 - No more than 10-20% of a paragraph should be evidence (the quote or evidence), and the rest should be an analysis (of the writer’s own words) to support and connect why the evidence helps to support the argument.
- **Citing quotations**
 - We recommend using the IEEE style for citation if you are unsure:
 - <https://pitt.libguides.com/citationhelp/ieee>
 - Example (using a quote from *The Great Gatsby* by F. Scott Fitzgerald).
 - “So we beat on, boats against the current, borne back ceaselessly into the past” [1].
 - Notice that the citation happens after the closing quotation mark and before the full stop.
 - Example of omitting part of a quote:
 - **Original:** “All I kept thinking about, over and over, was 'You can't live forever; you can't live forever’” [1].
 - **Modified:** “All I kept thinking about ... was 'You can't live forever; you can't live forever’” [1].
 - When you omit parts of a quote, do not change the meaning context of the original source to fit your argument.
- **Proper use of *e.g.* and *i.e.***
 - The abbreviations *e.g.* and *i.e.* are **not** interchangeable.
 - *e.g.* is for the Latin phrase *exempli gratia* (example given)
 - *i.e.* is for the Latin phrase *id est* (in other words)

- The proper way to use these terms are as follows (notice comma placement):
 - Several programming languages (e.g., Python, Java, and C++) ...
- **Proofreading!**
 - Proofreading is an essential step in writing! The content could be great, but if the writing is littered with typos, spelling errors, grammatical mistakes, and other types of errors, then the message may be lost on the reader.
 - Your writing reflects your character. Poor grammar also reduces the credibility of the writer.
 - Read each sentence aloud, if needed, to determine if it is worded correctly and flows well.
 - For each sentence, ask
 - What is the purpose?
 - Does the sentence satisfy it?
 - Can I strengthen it?
 - If the sentence does not add anything to your argument, then get rid of it!
 - The same is true for each word.
 - Does this word weaken my argument?

Outline: Developing an outline is similar to planning the structure a software program before writing any of the source code. Hastily jumping into the details is more likely to cause you to overlook high-level issues with your essay. When writing a software function, you need to understand what the function's input and expected output will be before you begin writing the contents. Similarly, with each paragraph of your essay, you need to first determine the subject that each paragraph will cover and what conclusions you want the reader to take away. Once you have broken down your entire argument into an outline, you can then start filing in the details, knowing your argument fits within a reasonable framework.

- Creating an outline enables you to focus on the topic at hand, minimize the inclusion of irrelevant information, and help you formulate a clear and concise argument.

Things you should consider in your outline:

- **Introduction**
 - Tells the reader the subject of the paper.
 - Motivates the reader into why your paper should be read.
 - Begins with a simple, brief opening.
 - Provides some background information, if necessary.
 - Your thesis sentence should be concise and short.
- **Supporting Paragraphs (multiple, usually 3 is a good number)**
 - Each supporting paragraph is used to convince the user of some point in your argument. To do so, you will need:
 - **Claim:** The introduction sentence for a paragraph should tell the reader what the point of the paragraph is.
 - **Example:** For high assurance systems, safety should be a priority. To demonstrate that a system is safe, multiple layers of protection must be present. The Therac-25 is a high assurance system, since patients' lives were at risk during its use. AECL failed to prioritize safety when they removed the

hardware safety interlocks to prevent overdosing. As a result, AECL is at fault for any deaths caused by the Therac-25, because they failed to properly ensure the Therac-25 system was sufficiently safe for use.

- In this example, it is clear who the writer is claiming is at fault, and it is clear why that conclusion has been made.
- **Evidence:** A fact, or quote from a paper, that is used to support your argument.
 - **Example:** The Therac-25 is based on its predecessor, the Therac-20 [1, pp. 2]. However, for the Therac-25, AECL decided to remove any hardware safety interlocks and instead relied on software for safety [1, pp. 6].
- **Analysis:** Analysis is the synthesis and logical reasoning that leads the reader from your evidence to your conclusion. It is not enough to simply say that AECL removed the hardware interlock. You should also state why it is a problem, why it matters, and what are the consequences. Even though it may be obvious, do not assume that the reader will make the same connections as you have.
 - Explain clearly why your evidence is relevant to the discussion.
 - **Example:** High assurance systems should have multiple layers of protection, since when one fails, another layer will be able to prevent total system failure. By removing the hardware safety interlocks and relying solely on software as a safety mechanism [1, pp. 6], the Therac-25 failed to prevent accidental overdose of its patients.
- **Connection and Conclusion** provides a link to your argument and allows a smooth flow of your paper.
 - Example: If AECL retained the hardware interlock in the Therac-25, several incidents could have been prevented due to a software failure; thus, AECL is at fault for failing to provide safety to its product.
- **Conclusion**
 - The conclusion summarizes all of the points you have made in your essay.
 - Where the introduction is meant to hook your reader and lead them into your argument, the conclusion is meant to hammer in the key take-away points of your argument.

As a whole paragraph, an example paragraph might look like the following:

AECL is to blame for any deaths resulting from the Therac-25, because they failed to prioritize safety. To demonstrate that a high assurance system is safe, multiple layers of protection must be present to cover situations where any single layer might fail [2]. The Therac-20, a predecessor of the Therac-25, included hardware interlocks for safety [1, pp. 2]. However, for the Therac-25, AECL decided to remove all hardware safety interlocks and instead relied only on software for safety [1, pp. 6]. Patients' lives were at risk from radiation overdosage [1, pp. 3], and therefore, the Therac-25 should have had multiple layers of prevention for overdosing. Had hardware interlocks been in place, the Therac-25 would not have overdosed its patients when its software malfunctioned. AECL failed to prioritize safety for the Therac-25 when they removed the hardware safety interlocks, and therefore, AECL is to blame for any resulting deaths.

- See how this paragraph begins with a focused point and logically follows to its conclusion?