Writing for CS3398

Objectives:

At the end of the semester, the students writing should be able to do the following (in their writing):
- Convey central ideas effectively and critically evaluate sources.
- Use good structure and logical organization.
- Use proper mechanics and grammar.
- Write at a level that is appropriate for the audience.

I will address some of these issues later in the semester when we talk about doing research and the term paper.

Good structure and logical organization:
- A paper has a thesis: a claim, a statement, a central idea.
- Each paragraph has a main idea that supports the thesis.
- Each sentence in the paragraph supports the main idea.

Writing at a level appropriate for the audience:
- Technical words must be explained and/or defined.
- The depth of the explanations must be appropriate.

Different types of writing useful in this class:

There are three main kinds of writing I expect you to be able to employ in this class:
- Summary or paraphrase
- Expository: explain or inform
- Argumentative: state a claim and give reasons to support it

Note: For this class, I am NOT interested in your personal opinions or evaluations!

Summarizing and Paraphrasing:
Both of these involve putting a selection of text into your own words. In both cases it is necessary to attribute your writing to the original source. Summaries include only the main point(s) and are usually significantly shorter than the original. Paraphrases are usually only somewhat shorter than the original passage.

Expository writing:
The purpose of expository writing is to explain or inform the reader. The writer should not assume that the reader has prior understanding of the topic. Some techniques that can be used to organize the explanation are the following:
- Describe the topic by listing characteristics, features, and examples.
- List items or events in numerical or chronological order (and describe!).
- Compare how certain aspects are similar to or different from other familiar concepts.
- Describe causes and explain their effects.
- State a problem and list one or more solutions.

Argumentative writing:

Most of the material in this section is based on Part I, Chapter 5, of:
Turabian, Kate L. *A Manual for Writers of Research Papers, Theses, and Dissertations*. 7th ed.
Chicago: University of Chicago Press, 2007.

Argumentative writing involves stating a claim, and then supporting it with reasons and evidence. This is the kind of writing that is used in academic research, as well as other professional contexts (i.e. trying to convince your manager to use a certain software development process on the next project). It is also often expected in essay questions on tests, for you to demonstrate your understanding of the material and the issues involved.

When employing this type of writing, you should first of all state a claim that may not be accepted at face value by your reader. In fact, you should assume your reader will not accept your claim until they have good reason to, based on the reasons and evidence you provide (this describes perfectly how I read your exams and term papers).

A normal "argument" is a conversation, where someone makes a claim and the other person challenges its validity. The first person gives reasons, provides evidence, and the other person either accepts that or more often challenges it and raises new issues. When you are writing your "argument", you must imagine the questions and challenges the reader would pose, and address these in your writing. You build your argument around answers to readers supposed questions.

Here are five questions you should answer in order to provide a sound argument:
What is your claim?
What reasons support it?
What evidence supports those reasons?
How do you respond to objections and alternative views?
How are your reasons relevant to your claim?

Note that reasons are logical, abstract statements that would be accepted as true by your reader (or will be after you finish supporting them). Evidence is more like data, or hard facts. They need no support.

How do you establish the relevance of your reasons?

Example:
My sister: "It's 5 degrees below zero (reason), so you should wear a hat (claim)." (pretend we are in Michigan at Christmas).
Me: "So what if it's 5 degrees below zero, why does that mean I should wear a hat?"
--I am not questioning the truth of the reason, but how it is relevant to the claim.
My sister: "Well, when it's cold, people should dress warmly"
--This is a general principle that I would probably agree with. A better statement might be:
"When it's below zero, if you don't wear a hat you might get frost bite".

In the Turabian book, these general principles are called "warrants". This is statement that when a general condition exists, a general consequence follows. Also it either would be accepted as true by the reader, or else it needs to be further proven by the writer.

Ok, so I agree: When it's cold people should dress warmly. But does that apply to my sister's claim? Yes:

The specific reason IS an instance of the general condition:
 "it's 5 degrees below zero" means "it's cold out" and

The specific claim is an instance of the general consequences:
 "you should wear a hat" is a valid instance of "people should dress warmly".

A software engineering example:

A potential "essay" question on the midterm:
What is the most appropriate software process model to use to develop a software system to control anti-lock braking in a car?

We will do this example in class. It should start with a claim and a reason. Then we need to talk about warrants. The lectures are probably full of warrants.

So when should you state the warrant(s) explicitly in your "argument"?
It depends on your audience, but in this class I suggest that you do it often.
As I said, the lectures are probably full of warrants. So one of the things I'm looking for in your writing, especially in your answers on the midterm and final, is a demonstration that you understand the "warrants". It's better that you state them in your answer, so then I know that you understand them. But in general, the more you read and write in a given area, the more you learn what warrants can be used without being stated explicitly.