

Top 10 Tips for Effective Writing Instruction in CS

1. *Identify learning objectives*

At the outset, determine what your key objectives are for writing in your class. Be as specific as possible about your goals, and then structure assignments around them. The greater the alignment between your objectives, your evaluation criteria, and the skills required by the assignments, the more likely it is you will see effects.

2. *Assign different types of writing.*

Go beyond just the formal essay as a writing assignment; include also low-stakes writing-to-learn assignments (such as one-minute papers and learning journals), different genres, or revision opportunities.

3. *Define the audience*

It is impossible to write well without a sense of who the reader is. In CS particularly, there are a wide range of possibilities, and the more that students appreciate this and learn to adopt the perspective of potential readers, the better their writing skills will become.

Audience	Other Programmers	Business Partners	End Users
Technical Expertise	<ul style="list-style-type: none"> • Equal to or greater than author 	<ul style="list-style-type: none"> • Possibly some, but not necessarily 	<ul style="list-style-type: none"> • Can't assume any
Purposes of Documents	<ul style="list-style-type: none"> • Explain technical problems • Propose technical solutions • Share new advances and approaches • Discuss, debug, and critique code 	<ul style="list-style-type: none"> • Identify needs or requirements • Clarify design parameters • Propose solutions to operational or organizational problems • Sell products/services/ideas 	<ul style="list-style-type: none"> • Describe features • Explain how to use functions • Support troubleshooting
Technical Jargon	<ul style="list-style-type: none"> • Can be used appropriately 	<ul style="list-style-type: none"> • Must keep to a minimum, and be sure to explain terms 	<ul style="list-style-type: none"> • Eliminate jargon; simplify language as much as possible
Tone	<ul style="list-style-type: none"> • Technical and precise 	<ul style="list-style-type: none"> • Professional and business minded 	<ul style="list-style-type: none"> • Simple and concise, but not condescending

4. *Clarify the purpose*

Asking students to write in a real-world and relevant genre is much more likely to capture their imagination and interest than simply asking them to write an "essay". Further, the more they know about what they are attempting to achieve with this communication, the more likely it is they will be able to separate relevant information from non-essential details.

5. *Provide clear topics or prompts*

One key reason for poorly written assignments is that students are grappling with overly vague or broad topics that cannot possibly be addressed adequately in the limited space they have.

6. *Outline the steps in the writing process*

Often students don't realize that writing is a process. All too often, they assume that brilliant ideas come fully formed and are written effortlessly; they don't appreciate that much of good writing is in fact in the planning, organizing, rewriting and rethinking. Help students become more aware of the process by breaking complex assignments into smaller steps, and giving feedback on each step to help them improve for that final draft. Or, if there isn't enough time to fit that in, engage them in a discussion about process, to help them see the various steps they must take. Even giving them a handout describing process can help.

7. *Support significant steps throughout the process*

It isn't enough to know what the steps are if you don't know how to go about doing them. Effective ways of helping students with process include modeling how you would accomplish each step; giving explicit instructions; and showing examples of writing within in the genre, and explaining why it is effective and how to create something similar.

8. *Encourage meta-cognitive strategies and revision opportunities*

Good writing skills are often about having a "toolkit" of strategies to draw from, with an appreciation of when to use each tool. Break students from the pattern of writing everything in a rush in the last minute by encouraging them to take time to reflect on what strategies they have used, which ones worked most effectively for them, and how they might improve next time. Drawing attention to these meta-cognitive strategies will help students become more aware of their individual strengths and weaknesses as writers, and which techniques for improving communication fit best for their personal learning styles.

9. *Be explicit about expectations and evaluation criteria.*

Another key reason for poor writing is that students aren't clear on exactly what they are being asked to do. The more you can help them to understand the genre you are asking them to write in and what you will be focusing on when grading, the better they will be able to meet those expectations.

10. *Focus on mechanics and details last, not first*

Grammar is important, but there is evidence indicating that many grammar and mechanical errors correct themselves once students have gained more mastery with higher-order concerns. Also, there is only so much feedback a student can process at a given time, and so the most effective comments will aim towards the most important or global concerns. When it is necessary to comment on grammar, start by identifying patterns of repeated errors. For example, if a student has multiple run-on sentences, underline them, and explain the error to the student and how to correct it. Once they have mastered the correction of one type of error, move on to the next.