

Student writing and learning

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Modified after an EC Handout by Rachel Beane

How writing is often included in coursework

- Final research project at end of course (last day of classes?)
- Students complete this at the last possible moment
- You frantically grade at end of semester to meet deadline
- Minimal feedback returned to student, no chance for students to learn or iterate

What are our big picture goals for teaching writing?

- Allow students to revise work iteratively to learn how to improve their writing
- Encourage them to extend the time horizon for work
- Encourage them to learn to self-evaluate/edit in a real and meaningful way
- Teach them what the reader needs to interpret their writing

Plan carefully for your specific course and needs

- Is this a general science course and you want to teach good basic analysis and writing skills?
- Is this a majors course where you are trying to teach fundamental aspects of science writing?
- Is this a capstone course where you are emphasizing highly technical writing?
- What is the length and depth of the assignment?
- The nature of your assignment may influence the appropriate approach to take

Brainstorm

- Take a few moments to write down your thoughts on the following:
 - What are 2-3 content areas from your course that you could use for a student writing assignment?
 - What is a type of writing assignment you would use for each topic?

Teach writing explicitly

- When are students learning about good writing?
- It may be they haven't had explicit training as often as you might think
- Take one lecture (or more) to teach what good writing means to you and why writing is important
- Emphasize the goals of writing and the needs of the reader
 - Highlight significance of problem
 - State a thesis
 - Clear and logical flow of ideas from one section to the next, etc.
- Highlight science/earth science formats and conventions, as students may be unfamiliar with these
- Cover citation style and give examples of why we do this
- Minimize line by line editing
- Provide model examples (bad and/or good)

How to lengthen the time horizon: “Scaffolding” a longer writing assignment

- Getting students to take sufficient time on a writing assignment is challenging
- Lack of opportunity for revision based on comments
- Consider scaffolding longer assignments into manageable chunks (outline, introduction, results, etc. or however else you want to partition)
- Provide timely feedback on each section, focus on key issues
- Have students highlight for you the changes that they made for their revisions

Think, Pair, Share on a writing assignment you are considering

- Work with a partner to plan a writing assignment that you could give to your students with as much detail as possible
 - How long with they have to work on it?
 - What feedback, if any, would be provided along the way?
 - How will you assess this assignment?
 - What strategy/strategies will you employ to assure quality work from students?
 - How much is it worth (relative to their final grade)?
- Share your assignment(s) with the group

Resources

- SERC Resource “Organizing Scientific writing”
- SERC Resource “A Simple Approach to Improve Student Writing”
- SERC Resource “Example of Writing Assignment on Plate Tectonics”
- Gopen, G.D. and Swan, J.A., 1990. The science of scientific writing. *American Scientist*, 78: 550-558. (On the importance of writing for the reader)
- Transparency in Learning and Teaching (TILT) Framework: <https://www.unlv.edu/provost/teachingandlearning>
 - Example of a writing assignment applying the TILT framework: <https://serc.carleton.edu/teachearth/activities/209265.html>