



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Writing Assignment and Assessment Design

Writing Across the Curriculum+

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*Today's slides can be downloaded from our website: www.scwrl.ubc.ca/wac/

*Workshop certificates available on request.



Workshop Outline

- Introductions, why use writing in science courses?
- What makes a “good” formal writing assignment?
 - Best practices in assignment design
- Evaluating your assignment for best practices
 - Self- and peer review
- Assessment of writing assignments
 - Focus on using rubrics
- Summary, additional resources, workshop survey



Workshop Objectives

By the end of today's workshop you will:

1. Recognize components of an effective formal writing assignment;
2. Examine and suggest changes to example science writing assignments, including your own; and
3. Appraise a rubric and discuss its strengths and weaknesses.

Why use writing in science courses?

- Assignments help students retain course information better than exams (Gibbs and Simpson 2004-5)
- Students doing problem-based writing in physiology courses instead of lectures performed equally as well or better on exams than students taught with lectures/group work (Pelaez 2002)
- Increasing writing and critical thinking components changes how students learn (Bean 2011)
- Pedagogical research suggests focusing on high-priority content and skills (Zemsky 2009)
- Writing assignment design more important than number of assignments or amount of writing for deep learning (Anderson *et al.* 2009; Anderson *et al.* 2015)

Best Practices in Assignment Design

•The US Consortium for the Study of Writing in College, as reported in Bean (2011), and Anderson *et al.* (2015), found that the most effective assignments that encourage deep learning include:

1. A meaning-constructing task
2. Interactive writing processes
3. Clear explanation of writing expectations

Best Practices in Assignment Design

1. Meaning-Constructing Tasks

- Authentic tasks that require critical, integrative or original thinking
 - *"Highly effective teachers confront students with intriguing, beautiful or important problems...that challenge them to grapple with ideas, rethink assumptions, and examine their mental models..."*
(Bain, 2004)
 - Examples: analyze or evaluate something you read, summarize something you read, argue a position using evidence, write in the style and format of a specific field (Anderson *et al.* 2015)



Best Practices in Assignment Design

1. Meaning-Constructing Tasks

- Gives purpose, audience, and format

Show knowledge is a dialogue based on evidence and not only information and that writing is an interactive exchange between writer and reader.



Best Practices in Assignment Design

Example – From Bean (2011):

"You are Dr. Science, the question-and-answer person for a popular science magazine called Practical Science. Readers of your magazine are invited to submit letters to Dr. Science, who answers them in "Dear Abby" style in a special section of the magazine. One day you receive the following letter..."

Best Practices in Assignment Design

Provide a purpose.

Example - From Michigan Department of Education, WAC Document:

adapt	clarify	define	formulate	produce
analyze	collect	demonstrate	inform	persuade
argue	compare	design	inspire	revise
articulate	convince	develop	investigate	review
apply	criticize	disprove	invent	show
appraise	construct	devise	modify	solve
assess	create	discuss	organize	structure
categorize	critique	display	perform	support
challenge	debate	entertain	plan	synthesize
classify	defend	evaluate	present	teach
				test



Best Practices in Assignment Design

Specify an audience.

Example - From Michigan Department of Education, WAC Document:

advocate archaeologist astronaut author award winner builder biographer business cartoonist chemist consumer	critic curator customer detective developer doctor ecologists economists editor engineer family	farmer friend geologist grant writer inventor journalist lawyer lobbyist lab technician medical staff naturalist	neighbour nutritionist NATO staff observer oceanographer parent park ranger photographer professor radio station researcher	school board speech writer student talk show host schoolteacher test writer tour guide travel agent TV station zookeeper
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Best Practices in Assignment Design

Specify a format.

Example - From Michigan Department of Education, WAC Document:

abstract	contest entry	legend	photo essay	science notes
advertisement	digital story	letter to editor	picture book	scripts
advice	diorama	letter	play	skits
biography	display	magazine article	position	songs
book review	eulogy	model mystery	presentation	speech
book jacket	editorial	myth	promotion	storyboard
brochure	epitaph	news story	procedure	tall tale
cartoon	essay	news broadcast	radio script	technical help
collection	feature	obituary	research	test
commercial	fiction	pamphlet	report	text book
complaint	how-to-book	persuasive essay	sci-fi story	YouTube script



Best Practices in Assignment Design

Example – From Hobson (1998):

Writing Assignment: OTC/Health Care Product Review (Due: day, month, year)

Task and Purpose: Create a product review of a frequently used OTC or health-care product.

Audience: Specifically define the group of readers, determined by the author (for example, caregiver with feverish infant; adolescent male acne patient; geriatric female arthritis patient).

Format: Use the same format as an OTC patient education pamphlet or a magazine article such as those found in *Consumer's Reports* (see samples on reserve in library). Use graphics as needed to support the document's purpose.

Length: 1,000 word minimum

Best Practices in Assignment Design

2. Interactive writing processes

- Opportunities to brainstorm ideas prior to drafting
- Get feedback on drafts from instructors or peers
- Visit a campus writing center
- Write with classmates to complete a group project
- Early in the semester, assignments with rewrites can motivate deep learning

Expose and scaffold the interactive writing process. Show the process is iterative and that writing is not only packaging for information.

Best Practices in Assignment Design

Example - From the UBC First Year Seminar in Science (SCIE 113) term project:

Identify a current controversy in science that interests you. State your opinion and present the evidence that justifies your position.

Class 8	W Sept 30	Start to identify topic ideas
Class 11	W Oct 7	Paragraph on topic idea for approval due, submit in class (not for marks)
Class 13	F Oct 16	Outline due, submit in class (not for marks)
Class 16	M Oct 26	Revised outline including references due, submit to Connect (3%)
Class 23	M Nov 16	Version 1 due, submit to Connect (7%) along with TurnItIn Originality report
Class 25	M Nov 23	Bring hardcopy of Version 1 to class for peer feedback
Not a class	F Dec 11	Final Term Paper due, submit to Connect (15%) along with TurnItIn Originality report

Best Practices in Assignment Design

Help students gradually step into research.

Example - From Bean (2011):

Assignment cycle:

1. Give all students the same problem.
 1. Provide all references (course packet)
 2. Provide some references, students collect some
 3. Students find all references
2. Ask students to find own topics and all references.



Best Practices in Assignment Design

3. Clear explanation of writing expectations

- Present expectations for successful performance
- Ideally write the purpose of the assignment in terms of the learning objectives
- Present the grading criteria in the assignment (e.g. in the form of a rubric)
- Provide a sample of a completed assignment

Best Practices in Assignment Design

Example – Learning Objectives from the UBC ScWRL website and Colton and Surasinghe (2014):

- Apply: Cite different types of scientific literature appropriately; Locate relevant information in scientific publications.
- Create: Organize scientific information from a variety of sources to produce different written work (e.g. research articles, essays, blog posts, etc.).
- Develop scientific communication skills by planning, drafting, evaluating, reviewing, and revising a major science communication project (e.g., a research proposal).

How can you assess a writing assignment?

- Participation or simplified scales (e.g. Five Point Scale, Check/Check plus/Check minus)
- Visual layers checkbox (Garcia 2015)
- Portfolio marking (Bean 2011)
- All or nothing assessment, preceded by content questions (used for lab reports by Morgan *et al.* 2011)
- Rubrics*
 - Analytic: specific criteria scored individually
 - Holistic: single score for overall impression

How can you assess a writing assignment?

Example – Visual Layers Checkbox from Garcia (2015):

	Strong	Needs Development	Let's Talk
Organization and Structure <ul style="list-style-type: none"> Does your paper have a logical introduction, central argument and conclusion? Does your paper utilize logical and effective transitions? Does your paper include all required components? 			
Clear Hypothesis and Critical Evidence <ul style="list-style-type: none"> Does your paper have a clear, well articulated hypothesis? Does your paper provide both strong evidence for and against your thesis? Are your claims supported by the scholarship? 			
Insight <ul style="list-style-type: none"> Does your paper demonstrate insight into the assignment or experiment? Have you challenged yourself to go "beyond" the assignment? 			

Benefits of Rubrics

- Allow for more consistent evaluation across students and a quick way to give standard feedback with consistent language.
- Save time in grading, both short- and long-term, evaluating complex products.
- Clarify expectations and components of an assignment for both students and course TAs.
- Helps students awareness of their learning/progress.
- Results give instructor feedback on teaching skills.
- Promotes sharing of expectations among faculty.

How can you assess a writing assignment?

Simple Rubric Example – Banerjee, S.K. Geology Department, University of Minnesota (2003):

Section	Requirement	Points
Summary	Should be concise, address items a – d	5
Text	Must have a question or hypothesis to address; provide: (a) 2-3 pages of historical/scientific background, (b) 4+ pages discussing the evidence “for” and “against” the hypothesis, and (c) 3-4 pages of discussion/conclusion that show your answer to the question or your viewpoint on the hypothesis.	20
Figures	2-4 figures, legibly reproduced, that help you in arguing the evidence or conclusion. Must have figure captions. If you are copying published figures, give sources.	5
Citation and References	Must provide citations to the sources (e.g., Smith (1995)) in the text. Full citations to be given as “References” at the end. Six to seven references required.	5
TOTAL: 35 Points		

How can you assess a writing assignment?

Rubrics Considerations

- Rubrics give the false impression of a universal reader (Diederich, 1974) and implied precision.
- Designing a generic rubric (e.g. “good organization”) can be unclear, as meaning can vary across disciplines.
- Descriptive criteria on the rubric can reduce the need for margin/end feedback.
- See tips on the Cornell University website

Workshop Summary

- Best practices in assignment design
 - A meaning-constructing task
 - Purpose, audience and format/genre
 - Interactive writing processes
 - Help students step into research (scaffolding)
 - Clear explanations of writing expectations
- Assessment design
 - Simple assessments (e.g. checkmarks, visual layers)
 - Rubrics
 - Benefits of rubrics, different styles (analytic/holistic), considerations
 - Find what works for you, start small

WAC+ Program Services

- Workshops (including TA Training)
 - Providing Effective Feedback on Writing Assignments
 - Strategies for Student Success
 - Teaching Succinct and Accurate Science Writing
 - Teaching Oral Communication in Science
 - Non-traditional Communication Assignments
- One-on-one consultations
 - Class visits to discuss writing assignments
- Best practices in teaching science communication symposium



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