Writing in the Discipline: More Gain, Less Pain

A workshop facilitated by:
Koni Stone
Professor of Chemistry

Sponsored by the Faculty Center for Excellence in Teaching and Learning
When you use writing assignments, what are your teaching goals?
Project Management*

- How to make things happen
- Making good decisions
- Figuring out what is required
- Ideas and what to do with them
- How not to annoy people
- Leadership and trust
- Making deadlines
- What to do when things go wrong

*from Scott Berkun, Making Things Happen: Mastering Project Management
Project Management

- How to get the papers assessed.
- Making the assignment fit the learning goals
- Figuring out what is required to improve students’ writing
- Ideas and what to do with them—come to this workshop!
- How not to annoy people
- Leadership and trust—connecting the assignment to student success.
- Making deadlines-getting the papers graded in a timely fashion
- What to do when things go wrong
Strategies

- Assignment design and planning—Today!
- Peer review exercises, some today, more on the web
- Turnitin—future workshop
- Rubrics—future workshop
Project: Discipline Based Writing Assignment(s)

The assignment planning and tracking tool that you can use is based on an Individual Development Plan (IDP). Writing down the plan is a forcing function—with key features:

- The work (requirements)
- The skills needed
- The support required
- The time line
Research on adult learning indicates four essential principles of success:

(1) active involvement (doing the work),
(2) effective use of organization’s resources,
(3) social interaction/collaboration, &
(4) self-reflection (or self-assessment) – see three points above!
## Writing Assignment Development Plan

<table>
<thead>
<tr>
<th>Learning Goals</th>
<th>Deadline</th>
<th>Specific Skills needed</th>
<th>Strategies needed to build skills</th>
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| Learn about a biochemical topic in depth, understand the data that supports the current understanding of that topic. Develop writing skills to produce a high quality literature review of your topic that will be published on the web. | May 15   | • Find Relevant literature  
• Understand the experiments that generated the data  
• Critically analyze the data  
• Effectively communicate understanding in writing | • Enlist a librarian to give a seminar for finding relevant literature.  
• Students meet with instructor to discuss experiments/data that are confusing.  
• Students attend class and complete in class peer review exercises  
• Students and faculty meet deadlines. |
Goal: Clean House
List for Cleaning Project

• Clean kitchen
  – Counters
  – Floor
  – Scrub sink

• Dust

• Vacuum

• Scrub Bathroom

• Clean cat room
List for Cleaning Project
Deadline: Parents are arriving May 30th

• May 29: Clean kitchen
  – Counters
  – Floor
  – Scrub sink
  – Clean out fridge
• May 27: Declutter and Dust
• May 28: Vacuum
• May 29: Scrub Bathroom
• May 28: Clean cat room
• May 30: Run to store to have some food in fridge
Writing a Literature Research Paper is a Challenge

Assignment worth 210 points, Due May 15th: Review the current (2011-2015) biochemical literature on the topic of your choice and write a summary of what you learned from reading this literature. This paper will be graded on originality and depth of information presented. Be very specific. For example, if you are writing about diabetes as the leading cause of blindness, learn how diabetes causes blindness. What reactions are involved? What metabolic relationships are involved? Describe the research (specific experiments) that has led to these discoveries. No quotes are allowed and paraphrasing should be avoided. Use your own words to describe what you have learned from reading about your topic. Your final paper will be peer reviewed and published in an online journal: Stanislaus Journal of Biochemical Reviews.
**Breaking up is not hard to do....**

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Breaking up may be difficult to understand...

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Sit back, relax and enjoy the view!
Stanislaus Journal of Biochemical Reviews

May 2012
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Strategies for your next big writing assignment.

- Break it up into manageable steps, write down reasonable deadlines.
  - Reasonable for the students to complete,
  - Reasonable for you to assess and return before the next installment is due.
- Assess the students’ skills—what do they need before they can start each step?
- Start the semester and stay on course.
Break up the project

Write down the parts of the project and give each part a deadline.
Peer Review Exercises

• Students use another student’s writing for an in-class exercise. (Students earn points for the work.)
• Peer review exercises happen the Monday before the assignment is due.
• Students can often find another students’ mistakes (typos and thinkos)
• Students were actively engaged in the exercise (not much slogging required.)
• Improved writing that was turned in, greatly reduced late papers.
• Much less pain for me, lots of gain for the student
The Science of Scientific Writing

“If the reader is to grasp what the writer means, the writer must understand what the reader needs.”

George D. Gopen & Judith A. Swan

This article was originally published in the November-December 1990 issue of American Scientist. The need for clearer scientific writing is not a new thing.
Share with your neighbor!

• Exchange your Proposed Topic paper with your neighbor
• Read your neighbor’s paper
• Use the index cards to write down the main ideas.

What is your level of understanding of what you read?
- I understood everything, the main ideas were very clear to me
- I mostly understood the main ideas, some details were confusing
- I was slightly confused, I understood some of the main ideas
- I was very confused and was unable to determine the main ideas

• Exchange index cards.
• Chat about the main ideas.
1. Long distance relationships are difficult: don’t make your subject pine for its verb.

2. If it is important, put it at the end.
Verbs

In a paper by Wuhrer et al. immunoglobulin (IgG) glycans were profiled. After separating the different types of immunoglobulins using affinity chromatography with IgG binding Protein A and G, the fractions were digested with PNGase to separate the single glycan that was present on the IgG heavy chain. The resulting mixture contained a variety of free glycans, PNGase, and deglycosylated peptides. In order to isolate and ionize the glycans, the mixture was loaded into a C_{18} Nano LC coupled to an electrospray ion trap mass spectrometer (ESI-IT-MS). This system allowed for samples as small as 5 μL to be used at a flow rate of 150 nl/min. The authors estimate that the glycans were analyzed at femtomole and sub-femtomole quantities. Put into terms of concentration based on the volumes used in the article, the method was appropriate for oligosaccharides at concentrations of roughly 1 nanomolar.
List of verbs

• were profiled
• separating
• were digested
• was
• to separate
• contained
• to isolate
• was loaded

• coupled
• to be used
• estimate
• were analyzed
Subjects and Verbs

In a paper by Wuhrer et al. immunoglobulin (IgG) glycans were profiled\(^5\). After separating the different types of immunoglobulins using affinity chromatography with IgG binding Protein A and G, the fractions were digested with PNGase to separate the single glycan that was present on the IgG heavy chain. The resulting mixture contained a variety of free glycans, PNGase, and deglycosylated peptides. In order to isolate and ionize the glycans, the mixture was loaded into a C\(_{18}\) Nano LC coupled to an electrospray ion trap mass spectrometer (ESI-IT-MS). This system allowed for samples as small as 5 µL to be used at a flow rate of 150 nl/min. The authors estimate that the glycans were analyzed at femtomole and sub-femtomole quantities. Put into terms of concentration based on the volumes used in the article, the method was appropriate for oligosaccharides at concentrations of roughly 1 nanomolar.
Readers naturally put the greatest emphasis on the material at the end of what they are reading.

- We want to be rewarded for all of our hard work.
- Give us the goodies at the end of our reading.
- This applies to individual sentences, paragraphs and whole papers.
- Start a meal with soup (warm and comforting)
- End with dessert (lipids and chocolate!).
- **DESSERTS** is **STRESSED** spelled backwards.
Stress Position

Now look for the “soup” and the “dessert” in your writing sample.

Underline the soup. Is it at the beginning of your sentences? Is there more soup at the start of your paragraph?

Put circles around the material that is important—is it at the end of a sentence?

Does the “dessert” get richer (more interesting, newer) as the paragraph progresses?
Stress Position

Take a moment to look at your writing sample. Make a list of the important information (delicious dessert). Then write down the supporting information (warm and cozy soup stuff.)

**Soup (supporting details)**

1. 
2. 
3. 
4. 

**Dessert (new information)**

1. 
2. 
3. 
4.
Desserts are always better when they are shared

Exchange lists with your reading partner and compare notes about your understanding.

Was there enough supporting information at the beginning of the sentences/paragraph to make the reader feel comfortable?

Did your partner’s description of the main ideas match your list of desserts?
Thanks

Dr. Susan Baxter, Director of CSUPERB
Dr. Choong-Min Kang, Biology, CSU Stanislaus
Dr. Diana Chu, Biology, San Francisco State
KEEP CALM AND Write ON
What else?

• You’ve filled in the first column of your worksheet, right? All you have to do next is do the work (write), right?

• On the Writing IDP we provided – the first thing we suggest doing is a self-assessment.
  – Assess your writing (you just worked on that a little bit!)
  – Assess your understanding of what needs to get done
  – Assess the tools you have to get the work done
  – Assess the help you have on campus

[Links]
http://writingcenter.tamu.edu/for-faculty/teaching-writing/feedback/self-assessment/
http://www.writing.northwestern.edu/performing-a-writing-self-assessment/
Why self-assess?

Take charge of your career. Communicate with your mentor/students. Actively Manage your time and project.

If you can accurately self-assess – you can ask for help before you get stuck, you can see you might need to figure out a “plan B,” you can be more efficient with your time and your mentor’s time, you can improve your skills over time.
"I think I kind of figured out what the goal is behind this whole self-assessment thing that I have spent three and a half years on. The whole goal is to become a self-directed learner, to become responsible for your own education because we are not always going to have the opportunity to be here and to be guided by a teacher and to lean on a teacher. You have to be able to have an accurate idea of where you are and how you are doing, especially when you take in new information or new areas and you don't have these people as resources anymore. It's very difficult to get all this knowledge and keep going unless you are able to figure out how it is that you are doing - and that takes practice to get accurate and realistic."

- Alverno College student 1994
Things to think about *before* you meet with your advisor to discuss your IDP

- What are my strengths/weaknesses in writing?
- What is my previous writing experience?
- Who is the audience for this writing project?
- What are the formatting requirements and deadlines?
- Do I have a friend who can read my drafts in progress?
- How often might I need regularly scheduled meetings with my mentor?
Deadlines & Schedules

“Project schedules are the easy scapegoats for everything that can possibly go wrong. If someone fudges an estimate, misses a requirement, or gets hit by a bus, it’s the schedule (and the person responsible for it) that catches the blame.”

If - at the start of the project - you are fully aware of the likely reasons schedules fall apart and take action to minimize those risks – a schedule can become more useful and accurate tool! (your advisor might have some good advice here)

- From Scott Berkun, The Art of Project Management
Prioritize and set deadlines

- You’ve filled out your IDP as we talked through the “requirement gathering” stage of project planning (the work, the skills, the resources)

- Your Goals/ Tasks may not be in order of importance or timing.

- Try and put them in order - The hard part is committing to a deadline!
So – what do you think?

- Did you fill out your IDP?
- Did you learn something new today?
- Did you hear about tools you might want to investigate further?
Project Management can be a profession, a job, a role or an activity.

Project Management almost always includes:
(1) Planning, (2) Executing and (3) Refining.

From Scott Berkun & Atul Gawade's *Complications: A Surgeon’s Notes on an Imperfect Science*
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Effective Thesis Writing – Individual Development Plans

(workshop for faculty mentors and students)

Facilitators:

• Susan Baxter (CSUPERB)
• Diana Chu (San Francisco State University)
• Koni Stone (CSU Stanislaus)
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