

## Writing in a research setting

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# Overview

- About writing, and writing in a research setting.
- Setting your goals.
- Preparing to write.
- Free writing process.
- Chained free writing.
- Some tips for proposal/fellowship/application writing.
- Basic writing tips.
- Some focused tips for writing a personal, relevant background and future goals statement.

## About writing...

***“The discipline of writing something down is the first step toward making it happen. In conversation you can get away with all kinds of vagueness and nonsense, often without even realizing it. But there’s something about putting your thoughts on paper that forces you to get down to specifics. That way, it’s harder to deceive yourself or anybody else.”*** (Cynthia Fuhrmann et. al; December 2013).

# First, Set Your Goals: Why are you writing?

- The discipline of writing something down is the first step toward making it happen.
- Therefore, start with you and your career goals: do you have a 5 and 10 year plan and ‘horizon’? What are your personal short and long term scientific/scholarship goals?
- Then you can work on writing your research ideas, your fellowship proposals, your journal articles.

Pro Tip: use a career development management tool like MYIDP to make sure you are regularly searching and reporting on your progress

- <http://myidp.sciencecareers.org/>

Let's Go  
Write



# Preparing to Write

# Creating the Time and Space

- Writing takes time
- Regular Schedule – no binge writing!
  - Analyze when you write best, and set aside regular times.
  - I recommend 1 hour every day **before** checking e-mail
  - Boice and Johnson 1984:
    - those who wrote daily in regularly scheduled writing sessions produced more new ideas than those who wrote sporadically.
- Writing cues: set up environment for writing
  - Certain pen, certain desk, arrangement of materials and data, music, etc.
  - “I am writing.”

# Freewriting Process

- Divide your writing session in half:
  - Freewriting
  - Analyze, organize, and fill in the best parts that you've written.

# Chained Free Writing

- <http://writtenkitten.co/>
- Write for 5 minutes in ^ or word doc
- If you can't think of what to write, then write your name over and over
- Don't stop
- After 5 minutes, review what you have written and circle or highlight the most valuable information.
- Start a new 5 minute free-writing session, focused on the most valuable outcome of the first session.





# Now we write... Free-writing #1

- Open a word document that will save your free-writing exercises.
- Write for 5 minutes.
- If you can't think of what to write, then write your name over and over.
- **DON'T STOP.**

## Prompts (All optional!)

- “When I received notice that I was accepted to the SFI UCR Program, I couldn't believe it because...”
- “After this summer is over...”
- “Before I apply to graduate school, I'd like to...”

# Free-writing #2

- Review what you have written and circle or highlight the most valuable information.
- Start a new 5 minute free-writing session, focused on the most valuable outcome of the first session.
- How was it?

# About Writer's Block

- # 1 cause of writers block is “I have to have it all worked out first before I can begin to write.”
- Yet, studies show that writing is in and of itself a catalyst for thinking and analyzing. You have to “see” what you think.
- Writing stimulates brain function.
- Writing can move you to comprehend the outline of your thoughts.
- Write EVERY DAY!!!

# Not all academic writing is the same...

No matter what the genre, all writing is storytelling.

- Steven Taylor Goldsberry

Writing is seduction.

- Stephen King



INTRODUCTION

BACKGROUND

METHODS

RESULTS

DISCUSSION

CONCLUSIONS

# The Upside Down Principle for proposal/fellowship/application writing

- Communication from the inside out.
- Write it 'backwards', upside down or 'inside out'
- See:  
<https://www.youtube.com/watch?v=IPYeClTXpxw>
- **Start proposals with a one-sentence punch-line.**
  - First sentence expresses the 'How and Why'
  - Follow with a one-paragraph summary argument.
  - Add details as room permits.



CONCLUSION

EVERYTHING ELSE

# Upside Down Example

- The Center for the Management of Information proposes to reduce the drop-out rate among inner-city k-12 at risk learners by 30%...
- ...by creating a library of collaborative learning techniques that will engage the learner's vested interests, and so reengage them in the learning process.



## What are you trying to say? Articulate your objectives using NO jargon.

- The **Center for Research, Excellence, and Diversity in Team Science (CREDITS)** will be an integrated research and training program to increase and enhance Team Science (TS) capacity, effectiveness, and excellence in California.
- CREDITS will solve big problems by creating better teams using diverse approaches helped by the different backgrounds of the scientists.

# If you can say it better in fewer words, do so!

- Scientific research can be enhanced when informed by diverse points of view and diverse (and thus often broader) research questions. For instance, scientific discoveries have been made by women and URM scientists because of their particular gendered and racialized perspectives and experiences in the world. Diversity in science and in scientific teams increases public support of science, and brings scientific questions and research more in line with social needs and benefits. Diversity on organizational teams is generally seen to have positive effects on creativity, innovation, and productivity. However, women and URM scientists are less likely to participate in team science collaborations, and their participation in these networks develops later in their careers.
- Women and URM scientists don't participate as actively on science teams. We have a proven leadership program that will broaden participation.
- ....

Free-Writing – 280 characters

<http://www.charactercountonline.com/>

- Write a 280 research objective using no jargon.



[@SteveMartinToGo](#)

Steve Martin

Did you know it's possible to Tweet a concise, grammatical, correctly punctuated sentence that is exactly one hundred forty characters long?

1 Oct via web ☆ Favorite ↻ Retweet ↩ Reply

# The Showcase Principle

- A great physical space establishes credibility
- High-caliber graphics can help



## Which Document Would You Rather Read?

### Statement of Teaching Philosophy — Carrie J. Beyer

Preparing education students to teach science has been a very rewarding experience for me. It has provided me with the opportunity to help students develop confidence in their ability to teach science as well as grow and develop as a teacher myself. As a science teacher educator, I aim to develop students' understanding of scientific inquiry, helping them visualize science as a process of asking questions about phenomena, conducting investigations to answer those questions, and building explanations based on evidence. I also aim to develop their enthusiasm for teaching science and their ability to develop and teach lessons that engage children in scientific inquiry and promote a deep understanding of science.

To help my students achieve these learning goals, I use a variety of pedagogical methods grounded in my beliefs about teaching and learning. First, before introducing any new topic, I elicit my students' preexisting knowledge and beliefs. Students do not come into our classrooms as blank slates; rather, they have a range of ideas that shape how they make sense of new information and construct new knowledge. Therefore, I uncover my students' prior knowledge in order to help them become cognizant of their own ideas, and in turn, build upon and refine them during the learning process. For example, at the beginning of a science methods course, I have students complete two pre-assessments. One is a reflective journal entry that asks them to share what they think are the key characteristics of effective science teaching. The other is a lesson plan analysis task that has them identify the strengths and weaknesses of a science lesson plan and make adaptations to address those weaknesses. These assessments enable me to see to what extent they think teaching science as inquiry is important and are able to adapt curriculum materials for inquiry and students. At the end of the semester, I administer the same assessments, enabling me to see how my students' ideas and abilities have evolved during the course.

To help my students expand their initial ideas and abilities, I provide them with a variety of learning activities and experiences. For example, I have my students participate in scientific investigations just as they might do with their own students. These investigations provide them with the opportunity to experience the different aspects of scientific inquiry as learners themselves before engaging their own students in the inquiry process. I also have my students critically examine and share their ideas about different representations of practice, including examples of science lesson plans, written cases of practice, examples of assessments and accompanying student work, video recordings of lesson enactments, and direct observations of classroom teachers. These representations of practice make visible particular facets of teaching to my students, such as learning goals, anchoring questions, investigations, sensemaking, assessment, and equity. In turn, they help students develop new ways of seeing and understanding professional practice, thereby developing their understanding of science teaching.

To foster reflection on these representations of practice, I use a variety of small- and large-group discussion formats, including think-pair-share activities, jigsaw groups, fishbowl, and concentric circles. These discussions hold students accountable for developing their own ideas about the topics and enable them to share their views with others, promoting a diversity of perspectives. These interactions can also challenge students' thinking and prompt them to consider new ideas and concepts when making sense of experiences and constructing their own knowledge. To orchestrate discussion among students, I serve as a guide and facilitator, encouraging students to

### Sample Statement of Teaching Philosophy

Used with permission from the author.

**Dr. Geoffrey Rayner-Canham**

Professor of Chemistry, Division of Science, Sir Wilfred Grenfell College

#### Preamble

As a teaching professor, I do not believe my task is to teach; my duty and pleasure is to inspire my students. Inspiration is a multi-faceted concept. It involves making the context of the subject interesting and relevant to the students so that they will revel in learning even when plowing through derivations and calculations. It involves challenging students to excel while making sure that those struggling have the support and encouragement that they need. But in turn, it is the students who inspire me. It is a symbiotic relationship between the learned and the learner.

My teaching goals are dual: To inspire students to do their best and to cause them to develop a curiosity about the world in molecular terms. My approach to teaching is three-fold and is lodged in the three E's: excitement, expectations and environment.



#### Excitement

Science is so intriguing! The key point is to convey the thrill – I want to 'turn students on' to science. It's not always 'fun' – it can be intellectually challenging – but it can be made stimulating. If I'm enthusiastic, then there is the possibility my students will come to share that excitement.

Chemistry is not words and symbols on a chalk board, it is seeing chemistry and doing chemistry. The world around us is chemical and we, ourselves, are constructed of chemicals. It is this integration of chemistry and life that I seek to communicate to my students. Teaching chemistry provides a unique opportunity to weave historical and contemporary science together; it has the capacity of stirring human interest and creating social context.

Unless one has a genuine interest in, and enthusiasm for the subject one teaches, one can never become an inspiring teacher. It is not just the 'high flyers' or the so-called 'nerd scientist' types whom I want to 'turn on' to chemistry. My goal is for every one of my students to depart after class, thinking about some way in which chemistry interests them, whether it is the importance of zinc as an element in their diets or the dangers of indoor air pollution. My challenge as a teacher is to make my classes as engaging and relevant to my students' lives as possible. In fact,

# Getting your ducks in a row: some basic writing tips



# Basic Writing Tips



- Clarity is essential (ideas and writing).
- Some redundancy is good.
- Make sure that everything is there for a purpose.
- State things **simply** in common terms, and define your terms clearly if you must use nonstandard language.
- Avoid abbreviations and unexplained acronyms (ALWAYS spell out acronyms the first time you use them).

# Basic Writing Tips, contd.



- Show your passion! (but don't exaggerate!)
- Use declarative sentences.
  - USE "when," "will," "shall,"
  - Try to avoid "should," "would," "try," "perhaps," "hope"
- Use the active (not passive) voice.
  - "We will develop an experiment, " or
  - "The team will develop an experiment"
  - NOT "An experiment will be developed ."
  - "I heard it through the Grapevine" NOT "The Grapevine was where I heard it".

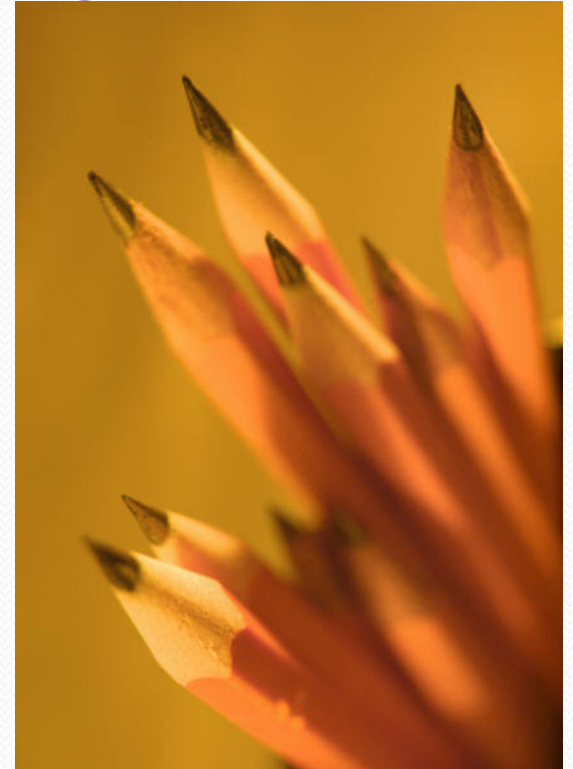


## Basic Writing Tips, contd.



- Answer the questions you would have if you were reviewing the proposal/application/article.
- Ask an educated ‘lay’ person to read and comment on your proposal/article/application.
- Ask another person to proofread and edit the final draft.
- Build in time to put it aside and come back to it.

# Writing a Personal, Relevant Background and Future Goals Statement



# Personal, Relevant Background and Future Goals Statement

- ***How will graduate school prepare you for a career that allows you to contribute to expanding scientific understanding as well as broadly benefiting society?***
  - Describe your personal, educational and/or professional experiences that motivate your decision to pursue advanced study.
  - Include specific examples of any research and/or professional activities in which you have participated; and how these activities have prepared you for graduate school.
  - Specify your role in the activity including the extent to which you worked independently and/or as part of a team.
  - Describe the contributions of your activity to advancing knowledge in your and related fields as well as the potential for broader societal impacts.

## Personal, Relevant Background and Future Goals Statement. Telling Your Story: contd.

Why are you excited about your research?

Do you have the *potential* to be a scientific leader?

Does your research and degree program fit with your future plans? What have you accomplished? How have you dealt with adversity and setbacks?

How have you been engaged with people from diverse backgrounds?

Have you taught and mentored others? Will you continue?

Describe your competencies and evidence of leadership potential.

Discuss your career aspirations and how the fellowship will enable you to achieve your goals.

- Adapted from materials created by Robin G. Walker, PhD, University of Missouri

# Personal, Relevant Background and Future Goals Statement, contd.

- Tell your story in a compelling and interesting way; but don't tell your entire life story!!
- How does who you are motivate you?
- Don't hesitate to show your passion!
- Remember: reviewers will be interested in your **potential** in graduate school and beyond.

# Bottom line

- Frame your passion and your innovative, quality work in the right language for the reader!
- And a little 'pixie dust' never hurt!



# Discussion and Burning Questions?





**Let's connect!**

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