February 9, 2010

Announcements

• First draft of the review paper is due on February 18, not February 16
• No lecture on Feb. 16!
• The revised (and final) draft of the statement for application to graduate school will be due on February 23

Comments: Personal Statement for Graduate School Application.

General philosophy of assignments and feedback:

Writing is a useful tool. How can this tool be used more effectively?

Pre-writing analysis.
1. Context of the writing
• What is the purpose?
  – Dissemination of information
  – Marketing
  – Rebuttal
• Will this be a stand-alone document, or will it be used in tandem with other materials?

Pre-writing analysis.
1. Context of the READING
• The admissions committee has a challenging task
  – From ≈ 75 - 100 applications (or more), they must select ≈ 10 - 20 people that will be offered admission
  – These are not applications to a creative writing program
• The committee must read the statements efficiently
  – They will be skimming for information that indicates that an applicant is likely to succeed in graduate school
  – Too much irrelevant text will dilute the statement, and the readers might miss the good stuff!

Pre-writing analysis.
1. Context of the grad. school statement
• Purpose: marketing.
• Statement will be used in tandem with other materials:
  – Transcript of undergraduate grades
  – GRE and other standardized test scores
  – Letters of recommendation
  – Possibly supplementary materials
• Therefore, some information is redundant in the personal statement. For example, “I took the thus-and-such course and Blurfidy Blurf 305...”

But, the statement may be the only opportunity to provide some information such as relevant experience, skills, achievements...

Pre-writing analysis.

• First, think about your achievements. Will any of these make your application more competitive?
• Then, think about the detailed aspects of the project and the highlights. Can you summarize the highlights in a few sentences?
• Avoid generic statements. For example, “I have strong computer experience.”
• Better: “During a summer research project, I wrote a C program that was used to analyze the multicolor photometry of stars from the Sloan Survey. The program identified carbon star candidates...”

Got milk? If not, think about getting some. People want to see more than just course work!
### Pre-writing analysis.

**2. Target readers**

- **Who will read this?**
- **What do they care about?**
- **What will they take for granted?**
- Your grad. school app: read by astronomers, physicists, geologists, teaching experts.
  - They are well rounded, but they’re not very interested in your creative writing skills here.
  - Avoid statements such as “It may seem foolish to study astronomy, but I love it...”
  - Some experience/achievements are impressive but irrelevant to these readers
  - Avoid statements that could offend or put off the committee

### Good writing that’s not good:

Plains of San Agustin, NM - Dawn. Six REU students huddle together on the balcony of the control building, peering towards the horizon. Venus still pierces the profoundly blue canvas as the stars slowly fade. Orange and red bleed through the thin atmosphere above the mountains. The first sliver of the sun’s disk reveals the silhouettes of six 25 m radio antennas, as the college kids burst into song...

*The Sun is a mass of incandescent gas/A gigantic nuclear furnace/Where hydrogen...*

### Bad writing that’s irritating:

I was fortunate to be eased into this process by first reviewing previous works in the area, including some by former students. From there, my research has been a constant cycle of analyzing previous ideas, attacking problems from new angles, then brainstorming with professors or graduate students as to where to go next. At its heart, I believe this is truly what research is, making progress by merging previous work with new theories and observations. It’s this sort of iterative process that ultimately satisfies by problem-solving “itch”...

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### The committee is reading the statements to learn about:

- Your special skills/aptitudes/knowledge
- Relevant experience (teaching and/or research)
- Accomplishments, particularly ones that demonstrate that you can do this.

**Independent research is a whole different world from the classroom & textbook, and some students have trouble making the transition. This statement is a an opportunity to demonstrate that you have the right stuff for this type of work.**

### Pre-writing analysis.

**3. Strategies for achieving the goal**

- **AVOID NEGATIVE STATEMENTS THAT PROVIDE NO BENEFIT.**
  - “I really have no research experience...”
  - “My knowledge of thus-and-such is lacking, but...”
- Emphasize strengths, not weaknesses.
- Demonstrate flexibility. While you may have a topic that is your favorite, you’ll have to play the cards that you’ve dealt in grad. school, and the opportunities might be elsewhere. Admissions committees can feel nervous about students that are too narrowly focused.
- Don’t waste this opportunity.
Today: more fun with journal papers!

What are the characteristics of a good abstract?

An abstract should be a miniature version of the paper.

Spectroscopy: The Workhorse of Observational Astronomy

Quasar Absorption Spectroscopy

Quasar Absorption Lines

1920s: Edwin Hubble discovered the expansion of the universe: $v = H_0 d$
Quasar Absorption Spectroscopy

Galactic Winds and "Feedback"

H I 21 cm emission
The Milky Way "High Velocity Clouds"