

# Writing Style

# Scientific Writing is to the Point

Good scientific writing uses only those words that are needed to make a point.

e.g.,

“The time courses of the model variables are described by seven coupled nonlinear ordinary differential equations”

**Total of 16 words**

# Scientific Writing is to the Point

“The seven variables of our model change with time according to differential equations. These equations are all nonlinear. Thus, our model is composed of seven nonlinear differential equations. These equations are also coupled to one another.”

Total of 36 words. **Bad!!!**

# Scientific Writing is Unambiguous

“We will use differential equations to describe calcium in the cell.”

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“We will use differential equations to describe calcium in the cell.”

Ambiguous. **Bad!!!**

# Scientific Writing is Unambiguous

“We will use **coupled nonlinear ordinary differential equations** to describe the calcium **concentration in the cytosol and endoplasmic reticulum** of the cell.”

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“We will use **coupled nonlinear ordinary differential equations** to describe the calcium **concentration in the cytosol and endoplasmic reticulum** of the cell.”

Unambiguous. **Good!!!**

# Scientific Writing does not use Euphemisms

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“Previous attempts at understanding this biochemical process came close to capturing the behavior of the system, but ultimately were lacking.”

**BAD!!!**

# Scientific Writing does not use Euphemisms

“Previous attempts at understanding  
this biochemical process failed.”

GOOD!!!

# Scientific Writing does not use Colorful Language

“The cell lit up like a star in the sky when it was stimulated, activating the fluorescent dye.”

# Scientific Writing does not use **Colorful** Language

“The cell lit up like a star in the sky when it was stimulated, activating the fluorescent dye.”

**Horrible!!!!**

# Scientific Writing does not use Colorful Language

“The fluorescence intensity increased dramatically when the cell was stimulated.”

Much Better

# Scientific Writing should not be Boring

“One can observe from the simulations of Figs. 1-7 and the data from Figs. 8-10 that our central hypothesis is consistent with many aspects of the data. Thus, one may conclude that the fundamental aspects of the hypothesis are correct.”

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*A real sleeper*

# Scientific Writing should not be Boring

“Based on predictions of our model illustrated in Figs. 1-7 we designed experiments to test our central hypothesis. Results from each of these experiments (Figs. 8-10) are consistent with our predictions. This strongly supports the validity of our central hypothesis.”

# Some words sound wrong or should be used with caution

“There was a huge change in voltage when the cell was stimulated.”

“The change in voltage was incredible.”

“It was surprising that the system responded the way it did.”

“The reason for the decrease in calcium concentration is clear.”

# Citations are Very Important

When using results or information from published articles you should always properly cite the article.

“It is widely accepted that synaptic facilitation is caused by residual free calcium (Zucker and Regehr, 2002).”

Then in the References or Bibliography section:

Zucker R.S., Regehr W.G., Short-term synaptic plasticity, *Annu. Rev. Physiol.* 64:355-405, 2002.

# Why are Citations Important?

- They help the reader if he/she is interested in digging deeper into a topic.
- It clarifies the origin of a result, and gives authenticity to a statement that you make.
- Scientists tend to be proud of their work. If you state a result obtained by Joe Scientist, but don't cite his work, then Joe will be upset. This is particularly bad if Joe is a reviewer of the article or proposal.
- It demonstrates to the reviewers that you know the scientific literature.

# Primary or Secondary Sources?

- The **primary source** is the article where the result was first reported.
- A **secondary source** sites the primary source. For example, a review article will site many primary sources. Textbooks also sometimes do this.
- Under most circumstances it is best to site a primary source. If many articles have been written about a topic and it is hard to pick one primary source, then cite a review article if possible.

# More Than One Source?

Is it necessary to cite more than one article?

It depends. If the result you are citing is key to your point, then it never hurts to cite two or three references.

You are never penalized for having too many sources, but you may be penalized for having too few.

# How Do You Find References?

- They may be cited in another paper you have read.
- Review articles.
- Google search.
- ISI web of knowledge (from FSU computer).
- Textbooks.

# Should You Read References Before Citing Them?

Yes, if possible.

Why? You may have found the reference cited in another paper. Hopefully, the authors of that other paper have read the reference, if not...

Using an incorrect citation can be embarrassing, and is an indication that you don't really know the field.

# Is There Reference Database Software?

Yes, there are several packages. These allow you to establish a reference library or database.

For Microsoft word: **Endnote** and **Reference Manager**  
These must be bought.

For Latex: **Bibtex**  
This is free.