WRITING A REVIEW PAPER

Handouts
“Avoiding Plagiarism”

What is a review paper
It explains the field to the reader in a succinct manner. In so doing it captures what is interesting in a field and it enables the reader to understand the problems and advances in a field without doing all the work of reading each research paper.

Who is served by a review paper?
Summarizes the literature for those outside the field. Used by people who want to get a grasp of the field without reading a zillion papers. Often used by textbook writers as a source for important studies.

Crystallizes the literature for those inside the field
People often cite a review instead of the main works. Any paper that does not get cited in a big review of the field is likely to be forgotten. Helps focus future research on key questions Sets the context for a grant proposal
By hooking the reader on a key question, you can then propose to answer it in your study

2 kinds of review paper & 1 hybrid
1. Introduction to a field
Selective
Covers subtopics within the scope of the title
Written to promote one’s own work in the broader context.
Example: Zakon’s 1998 review in TINS
Covers 3 model systems, including his own work on steroidal control of electrogentic cells.
76 refs

2. Summary of the research in an area
exhaustive
Covers every paper in the topic, or every paper since the last review of the topic.
Example: Wehling’s 1997 review in Ann Rev Neurosci
Covers every hormone, every study of rapid steroid effects.
151 refs

Selective
Example: PKS chapter in new Kroodsma & Miller
only passerine birds
only neighbor recognition
Note summary table with 36 references

3. Hybrid: grant introduction
somewhere in between the 1st two
Covers literature that sets the context for a the study proposed.

Example: PKS 1995 NSF proposal
Proposal about electric fish
Covered many examples from frog literature to explore key concepts and identify key questions.
130 refs

Sources of good review papers:

Annual Reviews
e.g. Annual Review of Ecology and Systematics
Ann Rev Physiol
Ann Rev Neurosci

Quarterly Review of Biology

Trends journals published by Elsevier, available online
e.g. Trends in Ecology and Evolution
Trends in Neuroscience

Nature Reviews
e.g. Nature Reviews Genetics

Edited volumes published by academic presses
Successful grant proposals

Who writes them?

Experts in a field
Grad students and postdocs trying to break into a new field
Suckers who were too nice to say "no" to an editor

Structure of a review paper

Abstract
Summary of topic and key points

Key Topics
text reviews published literature on each

Conclusions
short and sweet

Identification of key problems and directions for future research
List (may be covered in text)
Argument derived from the review itself.
What is known?
Where is the work leading?
What question, if answered, would make everything more clear?

Bibliography
50-300 references to papers cited in the text

Your review paper

Choosing a topic
Pertinent to the direction you want to learn a lot about
Resist the temptation to cover topics from where you’ve been.
Students who do that always produce something amateurish.
Broader than a tractable research topic.
Ideas generally make better topics than methods.
Should lead to questions that you or someone might find interesting to pursue.

**Focus**
Should cover literature relevant to a central question or phenomenon.
Reviews of what is known about a taxon are not likely to be published.

**Unique**
Cannot be covered by a recent review (one within past 3 years).
If you find a published review of the topic, change topics.

**Magnitude**
Aim for exhaustive coverage of a topic pertinent to your interests.

Compromise breadth

**Too broad:**
- Population biology of frogs
- Bird song
- Community ecology
- Genetics of the vertebrate immune system

**Too narrow:**
- Population biology of frogs in Florida
- Song of the towhee
- Community ecology of mosquito fish in the Everglades
- Genetics of MHC 23 locus in the mouse

**Just right**
- Role of predators in regulation of amphibian populations.
- Sexual selection for vocal complexity in passerines
- Recent (5 years) developments in studies of community ecology of poeciliid fishes.
- Genetics of MHC in parasite resistance

~50-100 references
- Alphabetized by 1st author’s last name
- Simple format:

Outdent.

Cite authors in text thus:
  - (Smith and Jones 1984) rather than with numbers or footnotes.
  - Use of "et al."

**Content: How should you review an area?**
Your review paper should have 2 attributes: Exhaustive & Interesting

**Exhaustive**
A review should allow a casually interested person to understand an area without reading all the literature himself.
Review should cover ALL of the relevant and important published papers, books, book chapters within the scope of the review.
The reader should be able to trust that this review misses nothing of significance.

**If the area is too big, you cannot do this.**

You can, however, cover every new development since the last published review.

**Interesting**

*What is interesting about the field or the question?*

**Big Question**

*If a review covers the literature that surrounds a question.*

*State the question.*

*A review is meant to educate the reader.*

*No help to say “X was looked at by so-and-so”. We want to know about the science, not what was looked at.*

**It should not read like a forced march.**

**Leads to new research**

*Include a section at the end that points out new directions*

*Where is the cutting edge?*

*What needs to be discovered?*

*What studies should be done to answer the question?*

**How to find the literature**

1. Search for reviews
2. Keyword search
3. Author search
   - Big name labs
4. Forward search
   - Science Citation Index search for papers that cited an important paper.
5. Backwards search
   - Read papers cited by the papers you’ve found
6. Ask the expert
   - Show your bibliography to your advisor and ask for papers you’ve missed.

**Collect PDFs**

**Filename**

*Author_journal_year.pdf*

**ILL request anything you can’t get.**

**Print copies (including bibliography at the end!),**

*Read them*

*Mark them up*

*Be sure to read bibliography for new papers you didn’t know about.*

**Maintaining a your own bibliography**

*You should acquire a citation manager program.*

*Endnote or whatever you like*

*Use it to keep track of every paper you read or copy.*

*Use it to format bibliographies for this class*
grant proposals
thesis proposals
term papers
publications

Attribution
Every fact needs a published source. Starting grad students know lots of things without knowing who first published them. You need to find out.

Primacy
The academic tradition and accepted practice is to cite the first paper that showed something. Not the most convenient.
You should also cite the others, but you must cite the first. Students often cite a paper published last year without bothering to find out where an idea came from.

Preferred format for citing authors in your review:
Not numbered format: Blah blah blah (3).
Last names only.
Both authors if 2.
et al. (with period) if more than 2.
List all authors listed bibliography.

Plagiarism
See handout “Avoiding Plagiarism”

Final format
title page
your name
title
date of print-out
abstract
double spaced text
10-20 pages
single spaced bibliography
alphabetized by last name of 1st author
Endnote will do this for you
outdented (not using tabs)
page numbers on every page except 1st
Serif fonts only (e.g., Times New Roman), 12 point.
Left justify
to make room for handwritten comments
1" left margin
1.5" right margin

6 Copies
one for your advisor
one for each instructor
2 for peer review
one for yourself

Evaluation
1. Advisor
   Your advisor MUST read, critique, and grade paper.
   Hand in a copy of your advisor’s comments or commented copy to us.
   Keep original for yourself

2. Course instructors