LECTURE 4.5
READING SCIENTIFIC PAPERS
PAPER STRUCTURE

Introduction
Starts at *broader point*
necessary to understand topic and *
funnels down* to your research

Discussion & Conclusions
Starts at *your research*
and *opens up* to the field and broader scientific community

Your research
- Figures
- Materials and Methods
- Results

Scope

Beginning

End
WHAT IS AN ABSTRACT?

1. What is already known about the subject, related to the paper in question?

2. What is not known about the subject and hence what the study intended to examine (or what the paper seeks to present)?

Andrade 2011, Indian J. Psych
ABSTRACT STRUCTURE

One or two sentences providing a basic introduction to the field, comprehensible to a scientist in any discipline.

Two to three sentences of more detailed background, comprehensible to scientists in related disciplines.

One sentence clearly stating the general problem being addressed by this particular study.

One sentence summarising the main result (with the words “here we show” or their equivalent).

Two or three sentences explaining what the main result reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.

One or two sentences to put the results into a more general context.

Two or three sentences to provide a broader perspective, readily comprehensible to a scientist in any discipline, may be included in the first paragraph if the editor considers that the accessibility of the paper is significantly enhanced by their inclusion.
“... most readers will acknowledge, with a chuckle, that when they leaf through the hard copy of a journal, they look at only the titles of the contained papers. If a title interests them, they glance through the abstract of that paper. Only a dedicated reader will peruse the contents of the paper, and then, most often only the introduction and discussion sections. Only a reader with a very specific interest in the subject of the paper, and a need to understand it thoroughly, will read the entire paper.”

Andrade 2011, Indian J. Psych
READING STRATEGIES

HOW TO READ SCIENTIFIC PAPERS

1. SKIM
   - First get the "big picture" by reading the title, key words and abstract carefully; this will tell you the major findings and why they matter.
   - Quickly scan the article without taking notes focus on headings and subheadings.
   - Note the publishing date; for many areas, current research is more relevant.
   - Note any terms and parts you don’t understand for further reading.

2. RE-READ
   - Read the article again, asking yourself questions such as:
     - What problem is the study trying to solve?
     - Are the findings well supported by evidence?
     - Are the findings unique and supported by other work in the field?
     - What was the sample size? Is it representative of the larger population?
     - Is the study repeatable?
     - What factors might affect the results?
   - If you are unfamiliar with key concepts, look for them in the literature.

3. INTERPRET
   - Examine graphs and tables carefully.
   - Try to interpret data first before looking at captions.
   - When reading the discussion and results, look for key issues and new findings.
   - Make sure you have distinguished the main points. If not, go over the text again.

4. SUMMARIZE
   - Take notes; it improves reading comprehension and helps you remember key points.
   - If you have a printed version, highlight key points and write on the article. If it’s on screen, make use of markers and comments.

How to Read Scientific Papers Quickly & Efficiently

Drew Dennis  Sep 14, 2017  3 min read
KEY TAKEAWAYS
Regulation of Keystone Predation by Small Changes in Ocean Temperature

Eric Sanford

Key species interactions that are sensitive to temperature may act as leverage points through which small changes in climate could generate large changes in natural communities. Field and laboratory experiments showed that a slight decrease in water temperature dramatically reduced the effects of a keystone predator, the sea star *Pisaster ochraceus*, on its principal prey. Ongoing changes in patterns of cold water upwelling, associated with El Niño events and longer term geophysical changes, may thus have far-reaching impacts on the composition and diversity of these rocky intertidal communities.
WHAT WERE KEY TAKEAWAYS FROM THIS PAPER?
WHAT STRATEGIES DID YOU USE TO READ THE PAPER?
WHAT WAS HARD / EASY ABOUT READING THE PAPER?
NEXT WEEK

APPLYING TO

JOBS & INTERNSHIPS
BEFORE CLASS NEXT WEEK

Complete Assignment 4

Watch Short ICC Video(s) in prep for next week

Think about what kind of job you might want after undergrad

Begin to winnow down topics for our wild card class!
QUESTIONS?