Overview

- Good writing of original research and ideas is part of doing good science
  - Becoming an effective writer allows you to think deeply, critically, and creatively about your research
- Papers published in top journals are accepted based on:
  - ideas that are presented and validated, not only the results
  - novel data that validates or overturns existing data
- When writing, think about:
  - your audience (What is the new knowledge?)
  - the big picture (What does your work validate or overturn?)
  - your message (What would the “News and Views” say?)
- Writing style
  - Write in an active voice
  - Say more and say it more effectively

Tips for Improving the Quality of Your Peer-Reviewed Paper

- Decide on the content of the paper
  - Bottom up -- assemble figures, tables, and legends, and then draft a linear and hierarchical outline (useful when results speak for themselves)
  - Top down -- assemble results and then write an abstract that tells the story (use the story to determine what data should be included or replicated)
- Outline the article
  - Hierarchical (linear thinkers)
  - Non-hierarchical (see examples of Mind Mapping or Concept Mapping)
- Decide on a Lead Writer who will:
  - Allow for one voice in manuscript
  - Set deadlines for outlines, drafts, and edits
  - Confer with “other first” and senior authors
- Write a first draft without editing
Key Elements of Your Article

- Title
  - Do not underestimate the importance of the title
  - Write an active, brief but informative title that stands out

- Abstract
  - An advertisement used to entice readers
  - Put your question in a broad intellectual context, not just your work
  - Let your readers know how you solved the problems
  - Let your readers know the implications of your findings

- Introduction
  - Let readers know why scientific questions under study are important
  - Provide enough background to persuade editors and reviewers that your findings are novel and significant, or demonstrate a new mechanism
  - Allow readers to understand or care about your story
  - Make it general for a broad audience but it is not a review of the field
  - Emphasize the work of others in the discussion
  - Save crediting for discussion, otherwise you trivialize your own work
  - If you need to mention results in the introduction, keep it brief

- Results
  - Historical (logical sequences of experiments)
  - Thematic (multiple researchers or novel findings that changed course of research)
  - Make sure each part of the results section has a context
    - How is it connected to the story?
    - Why was it done?
    - Why is it a novel control?

- Discussion
  - Turn results into ideas
  - Let readers know why your answers are important and novel
  - Place your findings into the context of all other relevant work
  - Crediting: “X” did this, but we did “Y” instead
  - Cite work that is your foundation, do not cite gratuitously
  - Construct a coherent discussion
    - Series of separate points (broad vs. different sub audiences)
    - Inform readers when you are addressing a different audience
  - Construct a stream of arguments
    - Inform reader of prior knowledge and weave in your findings
  - Combination of both coherent discussion and stream of argument