WRITE A SUCCESSFUL JOURNAL PAPER!
Some Guidelines

- Rule of thumb in the organization-
  - Introduction (to outline motivation of research and to define specific problem of interest)
  - Literature survey (cover all, complete, state-of-the-art, comments on pros and cons, and lead the discussions into your new idea)
  - Proposed New Design
  - Numerical and Experimental Validation
  - Conclusion (to identify areas for improvements and to draw a future research plan)
  - Acknowledgement
  - References

- Work on a storyboard at first to orient the salesman strategy
- Know your readership
- Use graphics and tables as often as necessary and justified
- Proof edited by a colleague, your advisor or a professionally trained copy editor
In Detail

1. Choosing a Title
   - Don’t be **cute**
   - Be short, but descriptive: e.g. “Creep”, is too short but “Diffusional creep in hot pressed Nb/Nb5Si3 microlaminates at 1000C in the low stress regime” is too long

2. Authorship
   - Typically the first author did most of the work, and wrote the paper
   - In my field, the last author typically headed up the research group and paid for the work
   - An author must have made a significant contribution to the work
3. Writing an Abstract
- This is the most read part of your paper
- Must be self contained and unambiguous
- Keep as short as possible
- The idea of an abstract is that it is a mini version of the paper
  a. Written by stripping away peripheral information and exposing the hard core of your contribution
- Required elements
  a. Statement of problem
  b. Explanation of approach
  c. Principal result
- Be careful to exclude statements not substantiated in the paper
- Style used: so-called “Indicative-informative”: Gives both general information about work and gives specific information about principal findings
- Abstract is used by search engines for finding your paper, i.e. must contain key phrases and words
4. Introduction
- Purpose of introduction is to supply enough information to allow reader to understand and evaluate results of present study without having to refer to previous publications on topic
- Structure of introduction:
  a. Start with general statement of problem area (orient reader)
    - State **Nature** and **Scope** of problem investigated
  b. Literature review
    - The idea of the literature review is to:
      1. Organize a picture of the state of knowledge in research area
      2. Give the reader a better understanding of the project and how it fits into the overall picture
  c. Rational for project
  d. Scope of Manuscript
  e. State method of investigation
  f. Indication of technical content that follows
  g. State major result and principal conclusions
5. Methodology
- Detail experimental design and provide enough detail so that competent worker can reproduce your results (cornerstone of science)
  - “Name names” of products and equipment used(?)
  - If new protocol, describe in detail, if not else reference
  - Details about samples

6. Results
- Identify your major findings
  - Interpret these thoughtfully in the discussion section
- Structure Used:
  - Overall description of experiments (big picture)
  - Present the data
    - Present representative data rather than all of it
    - Discrimination is the key
    - Use tables, avoid many descriptions
    - Don’t drone on about uninteresting results, mention them
  - Make results section short and punchy by avoiding redundancy:
    - Don’t repeat in text what is shown in figures and tables, rather touch on highlights
    - Only present enough results to support your conclusions
    - Discuss and summarize only important results
    - Pay attention to level of detail
      - Determined by type of paper and purpose of manuscript e.g. a paper on the design of a piece of equipment has different emphasis to a letter to Science
7. Discussion
- The discussion section is the **heart of the paper**
- Discussion section is essentially a thoughtful interpretation of the results
- Purpose: show relationships among observed facts
  - Factual Relationships
    - § Because of what we saw.....
  - Significance of results:
    - § So what?
- Show how results and interpretations agree (or contradict) previously published work
- Present a hypothesis explaining your results, do not recapitulate the results section
  - Point out how results support hypotheses, as well as exceptions
- Discuss theoretical and practical implications of your results
- Avoid presenting new results in discussion
- State conclusions clearly and summarize evidence for each conclusion
- End with short summary or conclusion regarding significance of work
8. Conclusions
- Both summarize and discuss the significance of your results
- Should be written in such a way that they:
  o Explain the net result of your work in a readable form
  o Serves as a candid critique of your work by including both the good the bad
  o Give directions for future work
  o Give the paper a strong closing
- Differ from abstract in that they are more complete

9. Acknowledgements
- Acknowledge
  o People than made a technical contribution
  o People who contributed ideas
  o Your sponsors (N.B.)

10. References
- When do you reference?
  o When information needed to support your point is given elsewhere
  o Acknowledge the work of others
  o You claim support for your arguments form other published research
- Don’t mess up details of reference (it ruins the citations index)
REFERENCES STYLE
A numbered list of references must be provided at the end of the paper. The list should be arranged in the order of citation in text, not in alphabetical order.

Each reference number should be enclosed by square brackets. In text, citations of references may be given simply as “in [1] . . . ”, rather than as “in reference [1] . . . ”. Similarly, it is not necessary to mention the authors of a reference unless the mention is relevant to the text.

Sample correct formats for various types of references are as follows.

**Books:**


**Periodicals:**


**Conference Proceedings (published):**


**Technical Reports:**