Preparation of a Manuscript for Submission to a Peer-Reviewed Journal

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Before you Submit

• Selecting a journal
  – Prestige – **impact factor**, rejection rate, and other metrics
  – Tradition
    • Professional societies
  – Audience
  – Publication costs
  – Time to publish for papers that are accepted
# Impact Factors – J Citation Reports, Web of Knowledge

<table>
<thead>
<tr>
<th>Journal Name</th>
<th>Impact Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature</td>
<td>31.4</td>
</tr>
<tr>
<td>Science</td>
<td>28.1</td>
</tr>
<tr>
<td>Crit Rev Environ Sci Tech</td>
<td>7.4</td>
</tr>
<tr>
<td>Environ Sci Tech</td>
<td>4.5</td>
</tr>
<tr>
<td>Environ Chem</td>
<td>2.3</td>
</tr>
<tr>
<td>J. Environ Qual</td>
<td>2.1</td>
</tr>
<tr>
<td>Water Air Soil Poll</td>
<td>1.4</td>
</tr>
<tr>
<td>Enviro Geochem HLth</td>
<td>1.2</td>
</tr>
<tr>
<td>Bio Environ</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Before you Submit

• Carefully read instructions to authors – and follow them!
  – Reference format
  – Units
  – Line and page numbers
  – Tables and figures
  – Character or word limits
  – Software requirements

• Never assume the formatting issues will be taken care of during or after the review process
Before you Submit

• A carefully prepared manuscript leaves the impression that the science was performed with equal attention to detail

• Language – never assume that someone else will fix language issues
Before you Submit

- Plagiarism – taking another persons ideas or writing and presenting it as your own
  - Accidental
  - Deliberate
  - Easily detected
  - You can plagiarize yourself

- Falsified data
  - Temptations
  - Deliberate
Getting Started

- “Blank page” syndrome
- An outline usually helps
- Have your content in order but don’t use content as an excuse to procrastinate
- You don’t have to start at the beginning
Getting Started

• Rabbits: Write anything to get yourself going but go back and fix it later – First draft can be pretty rough
• Turtles: Slow and methodical. Careful thought given to each sentence – First draft may not need a lot of revision
• “Written in stone” syndrome – in either case – revise as needed!
Submission to Editor → Reject w/o review → Return to author

Assignment to Editorial Board → 2 to 3 reviews

Consideration by Editorial Board → Recommendation to accept or reject

Return to author for revisions → Revised manuscript returned

Editor informs author of decision → Accept

Publication

Reject

Return review materials to author
Overall Quality of Manuscript

Quality of Science

Low | High
---|---
Low | D
High | A

Quality of Preparation

Low | High
---|---
Low | C
High | B

Chance of Acceptance

A>B>>C>D
Preparation of the Manuscript

• A scientific story that leads the reader through the entire process
  – Why was the work performed
  – How was the work performed
  – What was found
  – What was the significance

• Thesis/dissertation versus manuscript?
Components of a Manuscript

- Title
- Authors
- Keywords
- Abstract
- Introduction
- Materials and Methods
- Results and Discussion
- Conclusions
- Acknowledgments
- References
- Tables/headings
- Figures/captions
Title

- Accurately identifies and describes the content but is very short
  - The influence of prairie restoration on CT-measured soil pore characteristics
  - Influence of prairie restoration on CT-measured soil pore characteristics
  - Prairie restoration influences on CT-measured soil pore characteristics
  - Prairie restoration influences CT-measured soil pore characteristics
Abstract

• A very brief (<250 words in some cases) synopsis of the work
  – Why was the work performed
  – How was the work performed
  – What was found
  – What was the significance

• Should be written after the rest of the manuscript is prepared

• A good abstract is hard to write
Abstract

• Your goal is to get readers to read and cite your paper
• The abstract, final paragraph of the introduction, tables, and/or figures are often the only things a prospective reader will evaluate
• Use them to draw in your audience
Introduction

• Presents relevant literature citations
• Leads the reader to the reason the work was performed
• Final paragraph critical:
  – Objective(s)
  – Hypothesis(es)
  – Significance
• The basis by which your paper will be judged
Materials and Methods

- Written such that a scientifically literate person could repeat the work without providing excessive detail
  - We measured pH
  - The pH electrode was on the left side of the pH meter
  - Diagrams of treatment arrangements for field/greenhouse/other experiments
Materials and Methods

• Avoid excessive jargon, abbreviations or other language that is known only to a very narrow audience
• Routine measurements/procedures
• Can use citations to provide information
• Make sure M&M matches data presented
Results

• Representative results presented – only that which will be discussed
• Don’t “hide” data
• Tables and figures more efficient way to present large amounts of essential data
  – Tables – actual data or summaries
  – Figures – present trends
  – Provide relevant statistics
  – Headings and captions should allow the T&F to stand alone
Results

• Subheadings may help
• Citations not needed
• Avoid unnecessary text
  – Treatment effects are shown in table X.
  – Treatment A was significantly greater than treatment B (Table X).
Discussion

• May be combined with Results
• Most difficult section to write - Sell your data!
• Compare and contrast with published results – what is new?
• Relate to your hypothesis
• Do not over-extrapolate the data
• Speculation should be clearly identified as such
Conclusions

• Do not simply repeat what has already been said
• Do not introduce new discussion
• What is the take home message?
• Put the work into perspective – allows the reader to judge the merit of your work
• Suggest new ideas, approaches, or additional experimentation
References

• You should have read all of the papers listed
  – One of those authors may be your reviewer!
  – Do not perpetuate a bad citation
• Format important
• All references in text listed in references
• All references listed called out in the text
Tables, Figures, Headings, Captions

• A picture is worth a thousand words
  – Phamous phase diagrams
• T&F will likely be reduced in size – make sure text, symbols, and lines are readable
• Avoid overly complex presentations
• Color may not be available
  – Be kind to the color-blind
Other Suggestions

• Have others pre-review the paper – coauthors, colleagues, mentors, etc.
• Consider paying someone to edit before submission, particularly for language
• Never use the review process to “edit” your paper
• Never assume that a big-name author will carry the paper
Other Suggestions

• Think ahead – you want the paper to be accepted and be highly cited
  – High quality science
  – Clear and concise message
  – Don’t try the patience of the reviewers or others who will read the paper

• Think about the time line
  – Well prepared manuscript – 6 months to accept
  – Poorly prepared manuscript – 6 months to release, resubmit, 6 months to ?, . . . the years go by . . .
Revisions

• Being asked for revisions does not guarantee acceptance
• This is an opportunity to improve your manuscript – try not to be overly defensive
• You may have labored over the paper, but there is still room for improvement
• You do not have to make all of the suggested changes but will have to explain why you didn’t
**Revisions**

- Provide a detailed response as to how each reviewer comment was handled and where in the manuscript the changes were made
  - Page and line numbers – e.g., additional details were added on page X, line X.
  - Tables and figures – e.g., Table X was eliminated, Figure X was modified by . . .
- Thank the editorial board and reviewers for their efforts
Other Thoughts

• Nearly all scientists have had a paper released - persistence

• If your paper is released, do not simply resubmit to the same or another journal without revisions

• Volunteer to review and to serve on editorial boards
  – 3:1 ratio
Summary

• Publication is an integral part of the scientific method
• A good manuscript starts with good science
• Select your journal wisely
• Put your best effort forward
• Revise with a positive attitude
• Do your share of service for the process