How to write a scientific publication
Instructions And Hints How To Write A Scientific Publication

L. Richter

Department of Computer Science
Technische Universität München

Protein Prediction 2, WS 2013/14
Outline

1 General Recommendations
   - Preparations
   - Structure
   - Language and Writing
   - Process

2 Specific Recommendations
General Preparations for the Target

There are a few things to cipher out at the beginning of the process of writing:

1. Define the intended target area: Which conference / journal?

2. Look the appropriate format: Journals and conferences might offer different formats in terms of page limit, scientific impact, research or applications a.s.f. Get some sample publications to get a feeling.

3. If you are not sure in which category your publication will fall in check out various instructions.
Preparations

General Preparations for your Work

On the side of your work you should also make up your mind on some general points:

1. Try to identify the message of your publication, i.e. what is the main goal you achieved
2. Identify mandatory and optional display items, i.e. result tables and figures which have or might appear in the paper
3. Develop an embracing story for your publication in which all your pieces should fit in. Sometimes this is also called the red line of the story.
The number and name of the different sections of a publication might vary depending on the particular area in which you work but the general structure could be shown as follows:

- Title
- Abstract
- Introduction
- Materials & Methods
- Results
- Discussion
- Outlook
- Acknowledgements
General Recommendations

Specific Recommendations

Structure

Title

- expressive about the work you have done
- not to common and not to specific
- might change during the time of writing
Abstract

- a concise summary of your publication
- what did you why and how and what have you achieved
- a quick answer how your findings integrates with the field (great success, confirmation of known facts, failure, a.s.f.)
- do not bore or confuse the reader with details
- must be short and crispy
- might be the only section of your publication which is read
Introduction

- gives an overview over the field and its problems
- covers related work (give references)
- leads toward the presented work
- setting out a working hypothesis or a goal for the work done
**Material & Methods**

In this section you describe all the tools and the data you used for your investigations:

- **describe your data sets in terms of:**
  - type of content
  - size
  - source: origin of the data, date of download, database revision a.s.f.
  - somebody who wants to reproduce the experiments should be able to do this with the given information
  - optional: provide an URL to a website which hosts the supplementary data
Material & Methods cont.’d

- describe the algorithms you use:
  - name and reference (cite respective publication)
  - used implementations
  - if not documented or self-made give pseudo-code
In this section you describe mostly the outcome of your experiments:

- which combination of data and algorithms
- which parameters tested
- outcome of the different experiment
- tables and meaningful figures
- think, if the results are relevant to your story
Discuss your results and derived findings
relate to your starting hypotheses, if possible
relate to state of the art resp. related work
you citation to refer to related work
summarize/recap related work if necessary
Outlook & Acknowledgements

Outlook:
- optional and often not really required
- this is the point where ideas for further improvement go and where you can project in the future
- to repel competitors / to attract collaborators

Acknowledgements:
- not really a formal section
- it is polite to acknowledge courtesy and help of other people
- if the presented work is funded by third-party grants this should be mentioned here
- some funding agencies even require this
Language

- make sure to use the appropriate technical terms
- do not use colloquial expressions (..n’t, a.s.f.)
- use passive voice
- use past tense whenever possible
- make sentences not too long and complicated
- make use of native speakers, if possible
Language and Writing

Writing

- provide a number and caption for every table and figure you include
- every display item has to be covered in the text
- use whole sentences, avoid lists
- stick to the required citation style
- use provided document templates
How to put things together

Here are only a few hints about organizing the writing process:

1. after you identify the target format assign space to the different sections
2. generate captions for the display items
3. use these captions to write some corresponding text blocks
4. paste your building blocks into the template
5. fill the gaps with additional text
6. smoothen the text and align with your story
7. cross check references and formal requirements, only references mentioned in the text go into the bibliography
8. make use of reviews and iterate
Specific Requirements for the Report

Here we give information specific to your report:

- have a look at
  http://www.oxfordjournals.org/our_journals/bioinformatics/for_authors/general.html
- type of publication: Oxford Bioinformatics Application Note
- all group member are listed as authors
- exceptions: max. 3 pages if necessary, 2 would suffice
- max. 3 display item, 2 would suffice
- submission: Fri, Feb 28th, 2014, 12.00 CET
For Further Reading

W. Strunk and E.B. White.  
*The Elements of Style 4th ed. 1999.*  
Longman Publishers, Allyn & Bacon, Needham Heights, Massachusetts.

J.M. Williams.  
The University of Chicago Press, Chicago.

Department of Biology, Bates College.  