Before you start writing...

find a concept

• have all your data analysed statistically
• which data are needed, which give non-essential side information?
• create figures (NO final versions!) of the most important findings
• line them up into a „cartoon“ / picture story
  - this will be the  backbone  of your paper!

Before you start writing...

• agree with all co-authors on each persons role in manuscript preparation
  - lead in writing
  - figure preparation …
• order of authors & corresponding author
  - rules differ depending on the field
• select the journal you want to publish in
  who will be my readership?
• check the guidelines carefully:
  how many words allowed for different manuscript sections
  order of sections? Results & Discussion?
  how many display items?
  colour figures allowed?
  Supplementary Material?
Order of writing

1 Figures
2 Material & Methods and Results section
3 Discussion and Introduction
4 Abstract & Title

most important for first impression
spend time on this,
try to find an interesting and appropriate title
and write a concise abstract

Abstract

• summarise all parts of your paper (write it last)
  in the order they appear in the text
• it contains
  the general idea
  the tested hypotheses
  the results found
  the impact of the data
• the abstract should be understandable without the
  main text; it should attract the reader to continue reading

Introduction

• 1st paragraph: start general:
  what is the general area addressed?
  why is it important? (rather than giving examples in CS)
  what is the current knowledge on the topic?
  - give all the relevant literature
• 2nd / 3rd paragraph: get more specific:
  what is the open question that is addressed?
  why did you choose the particular study system?
• final paragraph: state your hypotheses (get to it quick)
  explicitly state your hypotheses
  and the predictions for your data
• why is your work novel and advances the field?
• dependent on journal: summary of main findings
Materials & Methods

- state **what** you did exactly, so that the procedures can be followed by others
- name standard methods
- give references for specialised methods
- give the origin of all used animals / chemicals
- give all sample sizes
- give subheaders
- add a section on the statistical tests applied and programs used

Results

- give the results in the same order as the experiments were explained in the Methods section
- present the results as short and clear as possible
- present for each statistical test
  - the test statistic, e.g. $t= \ldots$, $F= \ldots$
  - the sample size or degrees of freedom (as subscript)
  - the $P$ value (exact for overall tests; $>0.05$ for posthoc)
- state the direction of an interaction:
  e.g. $X$ increases significantly with higher values of $Y$
  *Not: $X$ depends on $Y$*
- do not add any interpretation of the data (this belongs to the Discussion)

Discussion

- summarize main findings in the beginning of the discussion (many people read this part first)
- go through your findings one by one (start with the main finding) and discuss their relevance in comparison to other work, not only in your own field of research
- end with a strong note
- address problems or potential criticism of your work, don't hope reviewers wont realise
- some journals allow an extra Conclusions section (or a joint Results&Discussion section)
**References**

- check author guides for number of references allowed and whether to include or not references in the abstract
- cite old & new, reviews & data papers
- literature search & citations (Patrick Danowski)

**Figures**

- already prepare them from the start in a program that delivers formats you can use for submission
- do not simply copy & paste it from a statistic package, process it to fulfill journal format criteria
- check the journal specific style
  - Font Type and Size
  - small/capital letters
  - line thickness
  - column width ...

**Tables & Figures**

- all important data should be presented in tables or figures, but not overlapping in both formats
- each table (with its title) and figure (with its legend) should be understandable in isolation from the text
- create figures that reveal the take home message easily; e.g. don’t add any legend text destroying the visual understanding of the graph
- ensure all tables and figures are referred to in the text, in the correct order
Acknowledgements

• thank everyone involved in the project, but who didn ’t contribute enough for authorship
(sometimes difficult to decide, discuss this)
• experimental help, help in the field
discussion & ideas
comments on the manuscript
funding agencies (check Author Information for
how much details should be given)
legal requirements

Other manuscript parts

Author contributions:
some journals encourage/require to give information on
the contributions of the different authors
- use this option if you can

Supplemental Materials:
depending on length limitations
and to improve general readability
it may be useful to give
- details on methods
- additional data
- data analyses
in Supplemental methods and figures; if possible Movies

Data repositories

Journals or Funding agencies require raw data being deposited
either before or after publication
Before: gene sequences GenBank. Protein sequences...
After: all raw data that go into the manuscript, computer codes

- use existing depositories
- IST repository being built
Writing for Conferences

• Biology: mostly Abstracts for admission to talks rarely - Conference Proceedings
  - Special Issues (invited talks)
  - Meeting Reports
• pick a symposium
• decide for oral vs poster contribution
• write an appealing abstract – oral contributions are highly competitive
  > can expect exciting talk, give one clear message
• start preparation 1-2 weeks BEFORE submission DEADLINE, the 1st version is often not the last!

Conference Abstracts

• match the word count exactly (or be shorter)
• create an appetizer
• title & first sentence are key to
  - define the topic & catch interest (stay scientific) > read on
  - be concise, informative, not too broad
• explain exactly your QUESTION OF INTEREST
• give some methods on general experimental approach
• give an OUTLOOK on what can be expected!
• Do not give away detailed data - counts as a publication!

Authorship

Conference Abstracts: only major authors
Journal Papers: everyone important
Order is very important!
In Biology:
1st author: person who performed experimental/theory work
Last author: person who provides scientific background,
  and financial background (salaries, laboratory)
Middle authors: minor contributions
• What if two authors contributed equally to first or last authorship?
  - swap order in consecutive papers
  - if no other option: draw by lot
  - in any case add: “these two authors contributed equally”
Authorship

Why does it matter?
- Especially first and last authorships count for CV (depending on career stage)
- Corresponding authorship is important!

What are the duties?
- First and last author typically share the writing duty
- Corresponding author is the lead author in submission, revision etc…

Who is a “natural” corresponding author?
- first or last author
- Performance of multiple duties over long time
  - 6-12 months until review / revision is finished
  - proofs: answer within 24-48 hours
  - scientific correspondence: until many years after – scientific stability

Corresponding author responsibilities

BEFORE publication
- lead the publishing effort
- choose the Journal
- correspond with the Journal / Editor:
  - submit the manuscript
  - write the letter to editor
  - correspond in case of problems/questions
- get agreement by all coauthors for the final version
- get agreement of all "active" authors on cover letter
- keep all authors informed of the status of the manuscript
- send the submitted version to all coauthors

AFTER publication
- perform all correspondence: reply to emails, send pdfs
- distribute required lab protocols & antibodies/mice… (in consultation with supervisor)

Before submission

• send the paper to all coauthors
  get their „formal approval“ for submission
  as you will submit in their name (corresponding author)
• once the content is clear, check again all formal requirements
  given in the Instructions to the Authors
• produce final figures, tables, text (eg remove field codes..)
• create a title page following the instructions
  - often: short title / header
• suggest or exclude Reviewers (during online submission)
Cover Letter

• convince the editor that your work
  - is NOVEL compared to current state of the art
    (what are the advances in the field by it)
  - is INTERESTING and RELEVANT
  - FITS to the journal you submit it to
• be brief (no longer than ½ to ¾ of a page)
• be precise, do not try to cheat or oversell your work
  (show that you are aware of other peoples work
   and the limits of your work)

Presubmission

• some journals have a presubmission policy
  - this can be extremely helpful and saves a lot of time,
    use this option of you can!
    as you will only write the manuscript with the length and
    format criteria (figures, reference numbers, referenced
    abstract or not) for this journal, when you know that
    sending out to review is highly likely
• provide a clear abstract and cover letter

Revision

in 99% of the cases, your paper will not be accepted as is
  deal with the referees’ and editorial comments
  simultaneously
  revised manuscript       response to comments
• systematically address all comments
• explain in the response letter how you have implemented
  the changes; give line numbers and copy the specific part
  of the changed manuscript, so that they don’t have to
  search it in the manuscript
Revision

• if a reviewer asks a question, don’t just answer in your response letter. The reviewer has highlighted something that was confusing in the text, so change the manuscript accordingly
• if a reviewer didn’t understand what you wanted to say, you have to explain it better!
• don’t get personal if you disagree with the referees, try to suggest a compromise
• use a neutral and professional tone

• if a reviewer didn’t want to follow some suggestions or think a suggestion is wrong, explain why

• ask for editorial help in cases where you feel the referee has been unfair
• the editor has the final decision and may overrule the referee
• don’t reply in the first flush, but take your time to respond (strictly keep time limits – otherwise you may have to completely resubmit)
• inform your coauthors of the process, involve them in the review process when needed

Acceptance

inform your coauthors!

Next steps:
• final figures
• proofs
• copyright forms
• (reprint orders)
• manuscript or colour picture charges
• cover pictures
### Proofs

- the copyeditor will have changed your text at many places
- the text often reads better, BUT: the copyeditor is no specialist in your field, so some sentences may get a different or wrong meaning
- check the proof sentence by sentence against your latest version – you should have kept a copy
- check all cross references to figures, supplemental material, references
  - provide information on papers that have been in press and are now published
- check corresponding author’s email address

- check all numbers given (statistics, sample sizes, values of measurements)
  - go back to your data and statistical analyses you performed;
  - always keep this information

- before you send it off, read the whole paper again for sense as if it was a published article you are reading for the first time

- proof reading is a tedious process, but changes cannot be made later!

- time pressure: 24-48 hours!

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