How to Write Great Papers

From title to references
From submission to acceptance

Presented by: Anthony Newman
Elsevier, Amsterdam
Workshop Outline

- **How to get Published**
  - Before you begin
  - Select your audience
  - The article structure
  - The review and editorial process

- **What not to do... (author ethics)**

2009
1.4 million articles in 23,000 journals by 2,000 publishers

Source:
M A Mabe The number and growth of journals
Serials 16(2).191-7, 2003
• 1,000 new editors per year
• 20 new journals per year

• Organise editorial boards
• Launch new specialist journals

• 600,000+ article submissions per year

• 11 million articles now available

• 11 million researchers
• 5,000+ institutions
• 180+ countries
• 400 million+ downloads per year
• 3 million print pages per year

• 280,000 new articles produced per year
• 190 years of back issues scanned, processed and data-tagged

• 200,000 reviewers
• 1 million reviewer reports per year

• 40%-90% of articles rejected

• 7,000 editors
• 70,000 editorial board members
• 6.5 million author/publisher communications /year
Trends in publishing

- Rapid conversion from “print” to “electronic”
  - 1997: print only
  - 2009: 55% e-only (mostly e-collections)
            25% print only
            20% print-plus-electronic

- Changing role of “journals” due to e-access

- Increased usage of articles
  - at lower cost per article

- Electronic submission
  - Increased manuscript inflow

- Experimentation with new publishing models
  - E.g. “author pays” models, “delayed open access”, etc.
Your personal reason for publishing

- However, editors, reviewers, and the research community don’t consider these reasons when assessing your work.
- If these are the drivers, consider a career switch
Always keep in mind that ...

.... your published papers, as a permanent record of your research, are your passport to your community!
Why publish?

Publishing is one of the necessary steps embedded in the scientific research process. It is also necessary for graduation and career progression.

What to publish:
- New and original results or methods
- Reviews or summaries of particular subject
- Manuscripts that advance the knowledge and understanding in a certain scientific field

What NOT to publish:
- Reports of no scientific interest
- Out of date work
- Duplications of previously published work
- Incorrect/unacceptable conclusions

You need a STRONG manuscript to present your contributions to the scientific community
What is a strong manuscript?

- Has a novel, clear, useful, and exciting message
- Presented and constructed in a logical manner
- Reviewers and editors can grasp the scientific significance easily

Editors and reviewers are all busy scientists – make things easy to save their time
How To Get Your Article Published

Before you start
Too many researchers have abandoned all the value of libraries when they stopped going there physically!

There is more than Google

Learn what online resources are available at your institute, and learn to search in a clever way.
Search Methodology of Researchers

- “The search methodology of the researchers can be characterized by “trial and error.” They have no planned search strategy, but start at random, experimenting both with the actual words and sources to use.

- ... they never use manuals, etc., for instructions. The idea of contacting the library for help does not occur to them. They have little or no knowledge of the finer points of many information sources

- ... researchers seldom use the library Web page as starting point ... , and instead use bookmarks/shortcuts added by themselves

- ... researchers have difficulties in identifying correct search terms. Searches are often unsuccessful.”

- “For many researchers, especially in the sciences, Google is the first choice for information – all kinds of information.”

- “Some [researchers] even state having moved from subject specific databases to Google.”

(Haglund and Olson, 2008)
Use the advanced search options

- Within Google and Google Scholar use the advanced searches and check out the Search Tips.

- In ScienceDirect, Scopus, WoS/WoK and other databases use proximity operators:
  - w/n  ➡️ Within - (non order specific)
  - pre/n  ➡️ Precedes - (order specific)

E.g. wind w/3 energy
Practical Advice

- **Find out what’s Hot**
  - [http://info.scopus.com/topcited/](http://info.scopus.com/topcited/)

- **Find the trends of the subject area**
  - Search tips (including alerts)
  - Journals, authors, publications per year (Scopus)

- **Evaluate which journal is right for your article**
  - Impact Factor
  - Subject Specific Impact Factor ([http://tinyurl.com/scopusimpact](http://tinyurl.com/scopusimpact))
  - Journal Analyzer
  - SNIP (using Scopus)
  - $h$-Index

- **Find out more about the journals**
  - Who are the editors?
  - Guide for authors
Find out what is being cited
Find out **who** is being cited

**Defining the Role of mTOR in Cancer**

David A. Guertin¹,², David M. Sabatini¹,³,⁺,⁻

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Available online 9 July 2007.
Find out **who** is being cited
Find out **who** is being cited – in more depth
Questions to answer before you write

Think about **WHY you want to publish your work.**

- Is it **new and interesting?**
- Is it a current **hot topic?**
- Have you **provided solutions** to some difficult problems?
- Are you **ready** to publish at this point?

If **all answers are “yes”,** then start preparations for your manuscript
What type of manuscript?

- Full articles/Original articles;
- Letters/Rapid Communications/Short communications;
- Review papers/perspectives;
- *Poster to present at conference – special case*

Self-evaluate your work: Is it sufficient for a full article? Or are your results so thrilling that they need to be shown as soon as possible?

Ask your supervisor and colleagues for advice on manuscript type. Sometimes outsiders see things more clearly than you.
Select the best journal for submission

- Look at **your references** – these will help you narrow your choices.

- **Review** recent publications in **each candidate journal**. Find out the hot topics, the accepted types of articles, etc.

- Ask yourself the following questions:
  - Is the journal **peer-reviewed**?
  - Who is this journal’s **audience**?
  - What is the journal’s **Impact Factor**?

- **DO NOT gamble by submitting your manuscript to more than one journal at a time.**
  - International ethics standards prohibit multiple/simultaneous submissions, and editors DO find out! (Trust us, they DO!)
Choose the right journal

Do not just “descend the stairs”

Top journals

Field-specific top journals

Other field-specific journals

National journals
Identify the right audience for your paper

- Identify the sector of readership/community for which a paper is meant
- Identify the interest of your audience
- Is your paper of local or international interest
Choose the right journal

- Investigate all candidate journals to find out
  - Aims and scope
  - Accepted types of articles
  - Readership
  - Current hot topics
    - go through the abstracts of recent publications

SummaryPlus |
Choose the right journal (continued)

- **Ask help from your supervisor or colleagues**
  - The supervisor (who is often a co-author) has at least co-responsibility for your work.

- **References in your manuscript will likely lead you to the right journal.**

- **DO NOT gamble by submitting your manuscript to more than one journal at a time.**
  - International ethics standards prohibit multiple/simultaneous submissions, and editors *DO* find out! (Trust me, they *DO*!)
What is the Impact Factor (IF)?

Impact Factor

*the average annual number of citations per article published*

- For example, the 2008 impact factor for a journal is calculated as follows:
  - \( A = \) the number of times articles published in 2006 and 2007 were cited in indexed journals during 2008
  - \( B = \) the number of "citable items" (usually articles, reviews, proceedings or notes; not editorials and letters-to-the-Editor) published in 2006 and 2007
  - 2008 impact factor = \( \frac{A}{B} \)
  - e.g. \( \frac{600 \text{ citations}}{150 + 150 \text{ articles}} = 2 \)
Impact Factor and other bibliometric parameters
Influences on Impact Factors: Subject Area

- Fundamental Life Sciences
- Neuroscience
- Clinical Medicine
- Pharmacology & Toxicology
- Physics
- Chemistry & Chemical Engineering
- Earth Sciences
- Environmental Sciences
- Biological Sciences
- Materials Science & Engineering
- Social Sciences
- Mathematics & Computer Sciences

Mean Impact Factor

[Bar chart showing the mean impact factor for various subject areas]
An international editor says...

“The following problems appear much too frequently”

- Submission of papers which are clearly out of scope
- Failure to format the paper according to the Guide for Authors
- Inappropriate (or no) suggested reviewers
- Inadequate response to reviewers
- Inadequate standard of English
- Resubmission of rejected manuscripts without revision

— Paul Haddad, Editor, Journal of Chromatography A
Read the ‘Guide to Authors’- Again and again!

- Stick to the Guide for Authors in your manuscript, even in the first draft (text layout, nomenclature, figures & tables, references etc.). In the end it will save you time, and also the editor’s.

- Editors (and reviewers) do not like wasting time on poorly prepared manuscripts. It is a sign of disrespect.
General Structure of a Research Article

- Title
- Abstract
- Keywords

Main text (IMRAD)
- Introduction
- Methods
- Results
- And
- Discussions

- Conclusion
- Acknowledgement
- References
- Supplementary Data

Journal space is not unlimited.
Your reader’s time is also scarce.
Make your article as concise as possible - more difficult than you imagine!

Make them easy for indexing and searching! (informative, attractive, effective)
Work in progress: What it will look like

The final article

GENERAL

SPECIFIC

GENERAL

Introduction

Methods & Results

Discussion, Conclusion
Save your editor and reviewers the trouble of guessing what you mean.

Complaint from an editor:

“[This] paper fell well below my threshold. I refuse to spend time trying to understand what the author is trying to say. Besides, I really want to send a message that they can't submit garbage to us and expect us to fix it. My rule of thumb is that if there are more than 6 grammatical errors in the abstract, then I don't waste my time carefully reading the rest.”
Key to successful scientific writing is to be alert for common errors:

- Sentence construction
- Incorrect tenses
- Inaccurate grammar
- Not using English

Check the Guide for Authors of the target journal for language specifications.
Scientific Language – Sentences

- Write direct and **short** sentences
- **One idea** or piece of information **per sentence** is sufficient
- **Avoid** multiple statements in one sentence

An example of what **NOT** to do:

“If it is the case, intravenous administration should result in that emulsion has higher intravenous administration retention concentration, but which is not in accordance with the result, and therefore the more rational interpretation should be that SLN with mean diameter of 46nm is greatly different from emulsion with mean diameter of 65 nm in entering tumor, namely, it is probably difficult for emulsion to enter and exit from tumor blood vessel as freely as SLN, which may be caused by the fact that the tumor blood vessel aperture is smaller.”
The process of writing – building the article

Title & Abstract

Conclusion

Introduction

Methods

Results

Discussion

Figures/tables (your data)
Policies regarding authorship can vary

One example: the International Committee of Medical Journal Editors (“Vancouver Group”) declared that an author must:

1. **substantially contribute** to conception and design, or acquisition of data, or analysis and interpretation of data;
2. **draft** the article or **revise** it critically for important intellectual content; and
3. **give their approval** of the final full version to be published.
4. **ALL three** conditions must be fulfilled to be an author!

All others would qualify as “Acknowledged Individuals”
Authorship - Order & Abuses

- General principles for who is listed first
  - **First Author**
    - Conducts and/or supervises the data generation and analysis and the proper presentation and interpretation of the results
    - Puts paper together and submits the paper to journal
  - **Corresponding author**
    - The first author or a senior author from the institution
      - Particularly when the first author is a PhD student or postdoc, and may move to another institution soon.

- Abuses to be avoided
  - **Ghost Authorship**: leaving out authors who should be included
  - **Gift Authorship**: including authors who did not contribute significantly
Acknowledge Individuals

Recognize those who helped in the research, but do not qualify as authors (you want them to help again, don’t you?)

Include individuals who have assisted you in your study:

- Advisors
- Financial supporters
- Proofreaders
- Typists
- Suppliers who may have given materials
Author names: common problems

- Different Spellings
  - Järvinen / Jaervinen / Jarvinen
  - Lueßen / Lueben / Luessen
  - van Harten / Vanharten / Van

- First/Last Names
  - Asian names often difficult for Europeans or Americans

- What in case of marriage/divorce?

Be consistent!

If you are not, how can others be?
Title

- A good title should contain the **fewest** possible words that **adequately** describe the contents of a paper.

- **Effective titles**
  - Identify the main issue of the paper
  - Begin with the subject of the paper
  - Are accurate, unambiguous, specific, and complete
  - Are as short as possible
  - Articles with **short, catchy titles** are often better cited
  - Do not contain rarely-used abbreviations
  - Attract readers - Remember: readers are the potential authors who will cite your article
## Title: Examples

<table>
<thead>
<tr>
<th>Original Title</th>
<th>Revised</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary observations on the effect of Zn element on anticorrosion of zinc plating layer</td>
<td>Effect of Zn on anticorrosion of zinc plating layer</td>
<td>Long title distracts readers. Remove all redundancies such as “observations on”, “the nature of”, etc.</td>
</tr>
<tr>
<td>Action of antibiotics on bacteria</td>
<td>Inhibition of growth of mycobacterium tuberculosis by streptomycin</td>
<td>Titles should be specific. Think to yourself: “How will I search for this piece of information?” when you design the title.</td>
</tr>
<tr>
<td>Fabrication of carbon/CdS coaxial nanofibers displaying optical and electrical properties via electrospinning carbon</td>
<td>Electrospinning of carbon/CdS coaxial nanofibers with optical and electrical properties</td>
<td>“English needs help. The title is nonsense. All materials have properties of all varieties. You could examine my hair for its electrical and optical properties! You MUST be specific. I haven’t read the paper but I suspect there is something special about these properties, otherwise why would you be reporting them?” – the Editor-in-chief</td>
</tr>
</tbody>
</table>
Keywords

In an “electronic world, keywords determine whether your article is found or not!

Avoid making them

- too general (“drug delivery”, “mouse”, “disease”, etc.)
- too narrow (so that nobody will ever search for it)

Effective approach:
Look at the keywords of articles relevant to your manuscript
Play with these keywords, and see whether they return relevant papers, neither too many nor too few
Graphite intercalation compounds (GICs) of composition CₓN(SO₂CF₃)₂ · δF are prepared under ambient conditions in 48% hydrofluoric acid, using K₂MnF₆ as an oxidizing reagent. The stage 2 GIC product structures are determined using powder XRD and modeled by fitting one dimensional electron density profiles.

A new digestion method followed by selective fluoride electrode elemental analyses allows the determination of free fluoride within products, and the compositional x and δ parameters are determined for reaction times from 0.25 to 500 h.
The place to convince readers that you know why your work is relevant, also for them

Answer a series of questions:

- What is the problem?
- Are there any existing solutions?
- Which one is the best?
- What is its main limitation?
- What do you hope to achieve?
Pay attention to the following

- Before you present your new data, put them into perspective first

- Be brief, it is not a history lesson

- Do not mix introduction, results, discussion and conclusions. Keep them separate

- Do not overuse expressions such as “novel”, “first time”, “first ever”, “paradigm shift”, etc.

- Cite only relevant references
  - Otherwise the editor and the reviewer may think you don’t have a clue where you are writing about
Methods / Experimental

- Include all important details so that the reader can repeat the work.
  - Details that were previously published can be omitted but a general summary of those experiments should be included
- Give vendor names (and addresses) of equipment etc. used
- All chemicals must be identified
  - Do not use proprietary, unidentifiable compounds without description
- Present proper control experiments
- Avoid adding comments and discussion.
- Write in the past tense
  - Most journals prefer the passive voice, some the active.
- Consider use of Supplementary Materials
  - Documents, spreadsheets, audio, video, .....
Ethics Committee approval

- Experiments on humans or animals must follow applicable ethics standards
  - e.g. most recent version of the Helsinki Declaration and/or relevant (local, national, international) animal experimentation guidelines
- Approval of the local ethics committee is required, and should be specified in the manuscript
- Editors can make their own decisions as to whether the experiments were done in an ethically acceptable manner
  - Sometimes local ethics approvals are way below internationally accepted standards
Results – what have you found?

- The following should be included
  - the main findings
    - Thus not *all* findings
    - Findings from experiments described in the Methods section
  - Highlight findings that *differ* from findings in previous publications, and *unexpected* findings
  - Results of the *statistical analysis*
Results – Figures and tables

- Illustrations are critical, because
  - Figures and tables are the most efficient way to present results
  - Results are the driving force of the publication
  - Captions and legends must be detailed enough to make figures and tables self-explanatory
  - No duplication of results described in text or other illustrations

"One Picture is Worth a Thousand Words"
Sue Hanauer (1968)
Results – Appearance counts!

- Un-crowded plots
  - 3 or 4 data sets per figure; well-selected scales; appropriate axis label size; symbols clear to read; data sets easily distinguishable.

- Each photograph must have a scale marker of professional quality in a corner.

- Text in photos / figures in English
  - Not in French, German, Chinese, Korean, ...

- Use color ONLY when necessary.
  - If different line styles can clarify the meaning, then never use colors or other thrilling effects.

- Color must be visible and distinguishable when printed in black & white.

- Do not include long boring tables!
Discussion – what do the results mean?

- It is the most important section of your article. Here you get the chance to SELL your data!
  - Many manuscripts are rejected because the Discussion is weak

- Check for the following:
  - How do your results relate to the original question or objectives outlined in the Introduction section?
  - Do you provide interpretation for each of your results presented?
  - Are your results consistent with what other investigators have reported? Or are there any differences? Why?
  - Are there any limitations?
  - Does the discussion logically lead to your conclusion?

- Do not
  - Make statements that go beyond what the results can support
  - Suddenly introduce new terms or ideas
Conclusions

- Present global and specific conclusions
- Indicate uses and extensions if appropriate
- Suggest future experiments and indicate whether they are underway
- Do not summarize the paper
  - The abstract is for that purpose
- Avoid judgments about impact
Avoid non-quantitative words, if possible

e.g.
- low/high
- extreme
- enormous
- rapid/slow
- dramatic,
- massive
- considerable
- exceedingly
- major/minor
- hot/cool
- ...

Quantitative descriptions are always preferred
References: get them right!

- Please **adhere to the Guide for Authors** of the journal
- It is **your** responsibility, not of the Editor’s, to format references correctly!
- **Check**
  - Referencing style of the journal
  - The spelling of author names, the year of publication
  - Punctuation use
  - Use of “et al.”: “et al.” translates to “and others”,
- **Avoid citing the following if possible:**
  - Personal communications, unpublished observations, manuscripts not yet accepted for publication
    - Editors may ask for such documents for evaluation of the manuscripts
  - Articles published only in the local language, which are difficult for international readers to find
Supplementary Material

- Data of secondary importance for the main scientific thrust of the article
  - e.g. individual curves, when a representative curve or a mean curve is given in the article itself
- Or data that do not fit into the main body of the article
  - e.g. audio, video, ....
- Not part of the printed article
  - Will be available online with the published paper
- Must relate to, and support, the article
Typical length of a full article

- Not the same for all journals, even in the same field
- “...25-30 pages is the ideal length for a submitted manuscript, including ESSENTIAL data only.”
  - Title page
  - Abstract 1 paragraph
  - Introduction 1.5-2 manuscript pages (double-spaced, 12pt)
  - Methods 2-4 manuscript pages
  - Results & Discussion 10-12 manuscript pages
  - Conclusions 1-2 manuscript pages
  - Figures 6-8
  - Tables 1-3
  - References 20-50
- Letters or short communications usually have a stricter size limitation, e.g. 3,000 words and no more than 5 figures/tables.
Abbreviations

- Abbreviations must be defined on the first use in both abstract and main text.
- Some journals do not allow the use of abbreviations in the abstract.
- Abbreviations that are firmly established in the field do not need to be defined, e.g. DNA.
- Never define an abbreviation of a term that is only used once.
- Avoid acronyms, if possible
  - Abbreviations that consist of the initial letters of a series of words
  - Can be typical “lab jargon”, incomprehensible to outsiders
Dear Professor Schmidt,

Enclosed with this letter you will find an electronic submission of a manuscript entitled "Mechano-sorptive creep under compressive loading – a micromechanical model" by John Smith and myself. This is an original paper which has neither previously nor simultaneously in whole or in part been submitted anywhere else. Both authors have read and approved the final version submitted.

Mechano-sorptive is sometimes denoted as accelerated creep. It has been experimentally observed that the creep of paper accelerates if it is subjected to a cyclic moisture content. This is of large practical importance for the paper industry.

The present manuscript describes a micromechanical model on the fibre network level that is able to capture the experimentally observed behaviour. In particular, the difference between mechano-sorptive creep in tension and compression is analysed.

John Smith is a PhD-student who within a year will present his doctoral thesis. This present paper will be a part of that thesis.

Three potential independent reviewers who have excellent expertise in the field of this paper are:

- Dr. Fernandez, Tennessee Tech, email1@university.com
- Dr. Chen, University of Maine, email2@university.com
- Dr. Singh, Colorado School of Mines, email3@university.com

I would very much appreciate if you would consider the manuscript for publication in the International Journal of Science.

Sincerely yours,

A. Professor
Suggest potential reviewers

- Your suggestions will help the Editor to move your manuscript to the review stage more efficiently.

- You can easily find potential reviewers and their contact details from articles in your specific subject area (e.g., your references).

- The reviewers should represent at least two regions of the world. And they should not be your supervisor or close friends.

- Be prepared to suggest 3-6 potential reviewers, based on the Guide to Authors.
Do everything to make your submission a success

- **No one gets it right the first time!**
  - Write, and re-write ....

- **Suggestions**
  - After writing a first version, take several days of rest. Come back with a critical, fresh view.
  - Ask colleagues and supervisor to review your manuscript. Ask them to be highly critical, and **be open to their suggestions**.
The Peer Review Process – not a black hole!

Many journals use a system of initial editorial review. Editors may reject a manuscript without sending it for review.

Why?

- The peer-review system is **grossly overloaded** and editors wish to use reviewers only for those papers with a good probability of acceptance.

- It is a **disservice** to ask reviewers to spend time on work that has clear and evident deficiencies.
First Decision: “Accepted” or “Rejected”

**Accepted**
- Very rare, but it happens

**Congratulations!**
- Cake for the department
- Now wait for page proofs and then for your article to be online and in print

**Rejected**
- Probability 40-90% ...
- Do not despair
  - It happens to everybody
- Try to understand WHY
  - Consider reviewers’ advice
  - Be self-critical
- If you submit to another journal, begin as if it were a new manuscript
  - Take advantage of the reviewers’ comments
  - They may review your manuscript for the other journal too!
  - Read the Guide for Authors of the new journal, again and again.
First Decision: “Major” or “Minor” Revision

**Major revision**
- The manuscript may finally be published in the journal
- Significant deficiencies must be corrected before acceptance
- Usually involves (significant) textual modifications and/or additional experiments

**Minor revision**
- Basically, the manuscript is worth being published
- Some elements in the manuscript must be clarified, restructured, shortened (often) or expanded (rarely)
- Textual adaptations
- “Minor revision” does NOT guarantee acceptance after revision!
Manuscript Revision

- Prepare a detailed Response Letter
  - Copy-paste each reviewer comment, and type your response below it
  - State specifically which changes you have made to the manuscript
    - Include page/line numbers
    - No general statements like “Comment accepted, and Discussion changed accordingly.”
  - Provide a scientific response to comments to accept, ..... 
  - ..... or a convincing, solid and polite rebuttal when you feel the reviewer was wrong.
  - Write in such a manner, that your response can be forwarded to the reviewer without prior editing

- Do not do yourself a disfavour, but cherish your work
  - You spent weeks and months in the lab or the library to do the research
  - It took you weeks to write the manuscript........

..... Why then run the risk of avoidable rejection by not taking manuscript revision seriously?
Rejection: not the end of the world

- Everyone has papers rejected – do not take it personally.
- Try to understand why the paper was rejected.
- Note that you have received the benefit of the editors and reviewers’ time; take their advice seriously!
- Re-evaluate your work and decide whether it is appropriate to submit the paper elsewhere.

- If so, begin as if you are going to write a new article. Read the Guide for Authors of the new journal, again and again.
Poster Presentations

- Title
- Abstract
- Keywords

- Main text (IMRAD)
  - Introduction
  - Methods
  - Results
  - And
  - Discussions

- Conclusion
- Acknowledgement
- References (minimal)

Clear, readable, well thought out. Stands out from the other posters as conference delegates walk past.

Poster space is very limited. Do NOT be tempted to reduce your typesize to get more text on the poster!

Make your poster as concise as possible - more difficult than you imagine!
Writing a Poster Abstract – the similarities

All of the above points for writing a paper still apply:

Tell readers what you did and the important findings

- One paragraph (often between 200-250 words) – check!
- You must not just state your results but also why your work is important, and your interpretation of what the results imply.
- A clear abstract will strongly influence if your work is considered further, and if you will be invited to speak or present a poster.
- Presenting a poster is a great springboard in your research career.
Writing a Poster Abstract – the differences

Your abstract will be evaluated by the conference committee and, they will either accept it as a Poster presentation, a short Oral Presentation, or Reject it!

The drawback: Often you have not written the poster/article when you submit your abstract to the meeting!

- Use the structure above to gather your results, methods, etc.
- Write a brief outline of what your poster would contain
- Use this to make a clear, strong, abstract to submit.
- Keep your notes – hopefully you will need them to make a poster shortly!
When it comes to publishing ethics abuse, the much used phrase “Publish or Perish” has in reality become “Publish AND Perish”!
Ethics Issues in Publishing

Scientific misconduct
- Falsification of results

Publication misconduct
- Plagiarism
  - Different forms / severities
  - The paper must be original to the authors
- Duplicate publication
- Duplicate submission
- Appropriate acknowledgement of prior research and researchers
- Appropriate identification of all co-authors
- Conflict of interest
International scientific ethics have evolved over centuries and are commonly held throughout the world.

Scientific ethics are not considered to have national variants or characteristics – there is a single ethical standard for science.

Ethics problems with scientific articles are on the rise globally.

M. Errami & H. Garner
A tale of two citations
Fabrication: Making up data or results, and recording or reporting them

“… the fabrication of research data … hits at the heart of our responsibility to society, the reputation of our institution, the trust between the public and the biomedical research community, and our personal credibility and that of our mentors, colleagues…”

“It can waste the time of others, trying to replicate false data or designing experiments based on false premises, and can lead to therapeutic errors. It can never be tolerated.”

Professor Richard Hawkes
Department of Cell Biology and Anatomy
University of Calgary

“The most dangerous of all falsehoods is a slightly distorted truth.”

G.C. Lichtenberg (1742-1799)
**Falsification:**

- Manipulation of research materials, equipment, processes
- Changes in / omission of data or results such that the research is not accurately represented in the research record

“Select data to fit a preconceived hypothesis:
- We do not include (data from) an experiment because ‘it did not work’, or
- We show ‘representative’ images that do not reflect the total data set, or
- We simply shelve data that do not fit.”

Richard Hawkes
Data Fabrication & Falsification - often go hand in hand

A Massive Case Of Fraud
Chemical & Engineering News
February 18, 2008

Journal editors are left reeling as publishers move to rid their archives of scientist's falsified research
William G. Schulz

A CHEMIST IN INDIA has been found guilty of plagiarizing and/or falsifying more than 70 research papers published in a wide variety of Western scientific journals between 2004 and 2007, according to documents from his university, copies of which were obtained by C&EN. Some journal editors left reeling by the incident say it is one of the most spectacular and outrageous cases of scientific fraud they have ever seen. ...

Chinese scientists dismissed after 70 suspect papers

BEIJING Two Chinese university lecturers have been dismissed after 70 papers they published in an international journal were revoked because of alleged fraud.

Hua Zhang and Ta University in scull the popars in 2006

"Although the Chinese government declares zero tolerance on academic fraud, in practice, few researchers are seriously punished for their misconduct. Universities tend to cover for those offenders with high academic status for fear of their power and the reputation of the school" said Fang

Chinese scientists dismissed after 70 suspect papers

"A researcher is rewarded and promoted largely based on the number of published papers, which poses dangerous incentives for researchers to commit fraud" he said

Plagiarism and fake publications of Anwar Tumur

Anwar Tumur (University of Ningsiang, Urumqi, People’s Republic of China) received a free access to our infrastructure and contributed to a 7-months study on rodents in set aside areas under my supervision (November 2003 to May 2004). Anwar Tumur did find that all the information gathered by him was included in the same literature and was not discovered by the author.

The study was published in Astra Pharmacologia Styxx (25: 204-205, 2005). Anwar never sent me any information from his stay in Switzerland, and it is included in the authors’ list without his knowledge or consent. This is completely unacceptable since the publication of fake data will damage my reputation.

I would not agree to co-author a publication based on data already published elsewhere or what to the editors and reviewers. Anwar Tumur intentionally misled and fooled the scientific community with our agreement, and we examined it in more details. To our astonishment, we realized that the incidence publications:

The incriminated publications:

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The incriminated publications:
Plagiarism

- A short-cut to long-term consequences!

- Plagiarism is considered a *serious offense* by your institute, by journal editors, and by the scientific community.

- Plagiarism may result in *academic charges*, but will certainly cause rejection of your paper.

- Plagiarism will *hurt your reputation* in the scientific community.
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- An author should not submit for consideration in another journal a previously published paper.
  - Published studies do not need to be repeated unless further confirmation is required.
  - Previous publication of an abstract during the proceedings of conferences does not preclude subsequent submission for publication, but full disclosure should be made at the time of submission.
  - Re-publication of a paper in another language is acceptable, provided that there is full and prominent disclosure of its original source at the time of submission.
  - At the time of submission, authors should disclose details of related papers, even if in a different language, and similar papers in press.
  - This includes translations
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- Elsevier is participating in 2 plagiarism detection schemes:
  - TurnItIn (aimed at universities)
  - IThenticate (aimed at publishers and corporations)

Manuscripts are checked against a database of 20 million peer reviewed articles which have been donated by 50+ publishers, including Elsevier.

All post-1994 Elsevier journal content is now included, and the pre-1995 is being steadily added week-by-week.

- Editors and reviewers
- Your colleagues
- "Other“ whistleblowers
  - “The walls have ears", it seems ...
Publication ethics – Self-plagiarism

Same colour left and right

Same text
An article in which the authors committed plagiarism: it will not be removed from ScienceDirect ever. Everybody who downloads it will see the reason for the retraction...
“I deeply regret the inconvenience and agony caused to you by my mistake and request and beg for your pardon for the same. As such I am facing lot many difficulties in my personal life and request you not to initiate any further action against me.

I would like to request you that all the correspondence regarding my publications may please be sent to me directly so that I can reply them immediately. To avoid any further controversies, I have decided not to publish any of my work in future.”

E-mail from a “pharma” author

December 2, 2008
Figure Manipulation – some things are allowed

As long as they don’t obscure or eliminate info present in the original image

- Brightness
- Contrast
- Colour Balance
- Nonlinear adjustments

Must be disclosed in the figure legend

- Enhanced
- Obscured
- Moved
- Removed
- Introduced
Figure Manipulation
Example - Different authors and reported experiments

Am J Pathol, 2001

Life Sci, 2004
Rotated 180°

Life Sci, 2004
Rotated 180°
Zoomed out ?!
What leads to acceptance?

- **A**ttention to details
- **C**heck and double check your work
- **C**onsider the reviewers’ comments
- **E**nglish must be as good as possible
- **P**resentation is important
- **T**ake your time with revision
- **A**cknowledge those who have helped you
- **N**ew, original and previously unpublished
- **C**ritically evaluate your own manuscript
- **E**thical rules must be obeyed

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– Nigel John Cook
Editor-in-Chief, *Ore Geology Reviews*
References and Acknowledgements

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  - http://owl.english.purdue.edu/owl/
- Petey Young. Writing and Presenting in English. The Rosetta Stone of Science. Elsevier 2006
- EDANZ Editing training materials. 2006
- Jullian Eastoe. Co-editor, Journal of Colloid and Interface Science
- Peter Thrower. Editor-in-chief, Carbon
- Roel Prins. Editor-in-chief, Journal of Catalysis
- Nigel Cook. Editor-in-chief, Ore Geology Reviews.
- Frans P. Nijkamp, Journal of Ethnopharmacology
- Wilfred CG Peh. Editor, Singapore Medical Journal
- Malcolm W. Kennedy. Professor, Institute of Biomedical and Life Sciences, University of Glasgow, UK
Further reading for you

- [http://www.icmje.org/index.html#ethical](http://www.icmje.org/index.html#ethical)
- [http://www.onlineethics.org/](http://www.onlineethics.org/)
- [http://owl.english.purdue.edu/owl/](http://owl.english.purdue.edu/owl/)
- Thomas H Adair. Professor, Physiology & Biophysics Center of Excellence in Cardiovascular-Renal Research, University of Mississippi Medical Center. [http://dor.umc.edu/ARCHIVES/WritingandpublishingresearcharticleAdair.ppt](http://dor.umc.edu/ARCHIVES/WritingandpublishingresearcharticleAdair.ppt)
- Bruce Railsback. Professor, Department of Geology, University of Georgia. Some Comments on Ethical issues about research. [www.gly.uga.edu/railsback/11111misc/ResearchEthics.html](http://www.gly.uga.edu/railsback/11111misc/ResearchEthics.html)
Questions?

Or for questions later, please contact a.newman@elsevier.com