



Faculty of Agriculture, Cairo University



Scientific Thinking and Writing (201 AGR)

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Scientific Thinking and Writing

Monday	Lecturer	Lecture Title
3/10/2016	Prof. Hosam Safaa	Introduction
10/10/2016	Dr. Fatma Mohamed	Interview and discussion skills
17/10/2016	Prof. Hosam Safaa	Thinking and Scientific Thinking
24/10/2016	Prof. Hosam Safaa	Communication: Theory and Application
31/10/2016	Dr. Fatma Mohamed	Time management
7/11/2016	Dr. Fatma Mohamed	Team management
14/11/2016	Dr. Osama Galal	Midterm exam
21/11/2016	Dr. Osama Galal	CV writing
28/11/2016	Dr. Osama Galal	Presentation skills
5/12/2016	Dr. Osama Galal	Poster preparation
12/12/2016	Prof. Hosam Safaa	Scientific Writing
19/12/2016	Prof. Hosam Safaa	Types and Evaluation of Scientific Writing

Types of Scientific Writing

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What is meant by PAPER?

- Report of original work
- Performed by you (and others)
- Published in scientific journal
- Reviewed by peers
- Widely available

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Parts of Paper

1. Title
2. Author (s)
3. Abstract / Summary
4. Introduction
5. Material & methods
6. Results
7. Discussion
8. Acknowledgment (option)
9. References

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Anatomy of a Research Paper

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- Title
- Authors
- Abstract
- Keywords

Need to be accurate and informative for effective indexing and searching

Main text (IMRaD)

- Introduction
- Materials and Methods
- Results
- Discussion (include conclusion)

- Acknowledgment
- References

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Title

1. To identify the main topic and message (answer) of paper (accurately, completely, and specifically).
2. To attract readers.

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Abstract

1. To provide an overview and clear preview of paper.
2. Must be understandable by itself and accurately reflect the paper.

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Introduction

1. Identifies the research question(s).
2. Provides background information (context) that a reader needs to understand your experiments.
3. Catches and holds reader's interest (justifies why the work is important).

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Materials and Methods

1. To tell reader what experiments you did to answer the question(s) posed in the introduction.
2. Should include sufficient details and references to permit a trained scientist to evaluate your work or to repeat the experiments exactly as you have done them.

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Results

1. Objectively state results/findings of the experiments described in the Methods section.
2. Direct reader to figures or tables that present the supporting data.

The Results Section is the Core of the Paper!

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Discussion

1. To answer the question(s) posed in the Introduction.
2. To explain how results support the answer(s).
3. To explain how answer(s) fit in with existing knowledge on the topic.

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Acknowledgments

- Acknowledge and thank colleagues who contributed to the work but do not meet the criteria of authorship.
 - Intellectual assistance (including reviewing manuscript).
 - Technical help.
 - Special equipment.
 - Materials (e.g. cell lines, antibodies, genes, etc.).
- Acknowledge financial support (list grant information).

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References

1. To give credit to the ideas and findings of others.
2. To direct readers to sources of further information

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Which writing style can be used to write a research paper and why?

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How to WRITE & PUBLISH a SCIENTIFIC PAPER

5th EDITION
Robert A. Day

ORYX PRESS
1998

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From the library, check and explain the anatomy of a thesis (Master or PhD)?

- Thesis Title:
- Thesis Type: Master or PhD
- Author Name:
- Year:
- Specialization:
- Anatomy of the thesis (contents):



To be submitted individually by
26th December 2016 by email:

201agr.en@gmail.com

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Writing and Rewriting

- Choose a form and stay with it
- Make the paragraph the unit of composition
- Use the active voice
- Put statements in positive form
- Use definite, specific, concrete language
- Omit needless words
- Avoid a succession of loose sentences
- Keep related words together
- In summaries keep to one tense

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Evaluating a manuscript

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An Example of Evaluation Criteria

1	✓ Statement of the problem
2	✓ Coverage of the topic
3	✓ Quality of the analysis
4	✓ Quality of the conclusions
5	✓ Applicability/scientific Value
6	✓ Organization and layout
7	✓ Quality of graphs and tables
8	✓ The language and the text

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Evaluating Research Sources

Checklist for Evaluating Research Sources	
Authority	Is the authority in this material clear and legitimate? Is the writer qualified?
Accuracy	Can the factual information be verified by legitimate authority? Can one opinion be verified against another?
Objectivity	Is the material objective and free of advertising, bias, and hidden agendas? Is the language impartial? Is the statistical evidence credible?
Currency	Is the material updated frequently to ensure currency? Does the material reflect the most up-to-date research?
Coverage	Is the material complete, partial, or out of context? If the material is out of context, is there a path to find the source? If the material is out of copyright, has it been updated to make it more current?

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Patterns for Presenting Information

- The **general-to-specific approach** opens an idea with a general statement and then leads into details that support and explain the general statement. (Deductive reasoning).
- The **specific-to-general approach** leads the reader to a general conclusion by first presenting detailed support of that conclusion. (Inductive reasoning).
- The **problem-cause/process-solution approach** will first describe the problem, then analyze the cause or responses to the problem, and then will lead to a solution.
- **Discussing Raw Data:** Raw data is generally presented in a visual format such as a chart or graph but is generally discussed in a general-to-specific pattern.
- **Summaries** are condensed restatements of factual information.
- **Abstracts** are condensed restatements of the main points and findings of an entire paper/thesis.
- **Critiques** are critical responses to source material and include the writer's statements of opinion.

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Selecting a Journal اختيار المجلة

1. Is the journal peer reviewed?
2. Does the journal *currently* publish papers on subjects such as yours? If you were looking for papers like your own, in which journals would you look?
3. Which journals have the best reputation for publishing in your field? Ask colleagues which journals they respect. Look at recent articles and judge their importance. Is the Editorial Board composed of leaders in their fields? What is the journal's *impact factor*?
4. Which journals are most likely to be cited by others in your field?
5. Is the journal published by a society? Society journals are usually the most prestigious and have the largest circulation. Be wary of new journals (in print or on the internet), especially those not sponsored by a society.

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Selecting a Journal اختيار المجلة

6. Is the journal indexed in the major electronic databases such as Medline, Biological Abstracts, Chemical Abstracts, Current Contents, etc.?
7. Which journals have the kind of expertise that would ensure your paper is given a "fair hearing"?
8. Are there journals whose readership you need/want to influence?
9. How often is the journal published? What is the usual time lag between receiving and publishing papers? Using the "date submitted", the "date accepted", and the date of the issue of published articles you can estimate the length of the review process as well as the time from acceptance to publication in print.

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Selecting a Journal اختيار المجلة

10. Is the journal published in English? English has become the language for international scientific communication. Therefore, if you are interested in communicating to the international scientific community, it is essential to publish in English. If you wish to communicate to a more localized community, you might choose a journal that permits another language.
11. What is the focus of the journal; is it broad or narrow? Which disciplines are represented? What is the journal's research orientation; is it basic, theoretical, or applied?
12. Do you like the appearance of published articles – the format, typeface, and style used in citing references? If relevant, does the journal publish short and/or rapid communications?
13. Do the figures published in the journal have the resolution that you need?
14. Is speed an issue? If so, monthly journals have a shorter lag time than quarterly journals.

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Selecting a Journal اختيار المجلة

- التحكيم من عدمه - الحقل العلمي أو التخصص
- السمعة (تصنيف-خبرات) - ارتباطها بالجمعية العلمية
- معامل التأثير - معدلات الإقتباس
- اتساع دائرة القراء - طريقة النشر (الالكتروني-مطبوع)
- اللغة المستخدمة - التنسيق وجودة الطباعة
- سرعة النشر - تكاليف النشر

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Responding to Reviewers

الرد علي المراجعين

1. Read all of the comments from reviewers and the editor.
2. Never respond immediately. Allow yourself a few days to reflect on the comments.
3. If the comments from the editor and reviewers can be used to improve your manuscript, by all means, make those changes.
4. If your manuscript was rejected and you still feel that your work deserves publication, send it quickly to another journal. Some data can become less relevant if too much time passes.

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Responding to Reviewers

5. If your manuscript has been provisionally accepted, it is a good idea to respond promptly. As soon as possible, begin drafting a polite, thoughtful, clear, and detailed response.
6. Be polite. Avoid a defensive or confrontational tone in your response. The goal is to extract helpful information from the comments, adopt any useful suggestions to improve your manuscript, and calmly explain your point of view when you disagree.
7. Respond completely to each comment in an orderly, itemized manner, and, if necessary, copy and paste into the letter any substantive changes made to the manuscript. There is no limit on the length of your response. Most editors are willing to read a long and complete response.
8. Change and modify your manuscript where it makes sense. You are not required to make every suggested change, but you do need to address all of the comments. If you reject a suggestion, the editor will want a good reason with evidence supported by references. Just because you prefer it your way is not a good enough reason.

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Responding to Reviewers

9. Reviewers do not always agree with each other, in which case you must make a choice. Decide which recommendations seem more valid, and note in your response letter to the editor that you received conflicting advice and made what you think is the best choice.
10. If the reviewer is obviously wrong and has made a mistake, you are entitled to provide an argument and provide facts that can be referenced.
11. Sometimes you are asked to reduce considerably the length of the manuscript. You must not feel too attached to your words and should shorten the manuscript.
12. Ensure that what you say you have done to the manuscript, has in fact been done, and do make sure you follow the journal's guidelines. Editors become irritated when they find that comments made in the response letter do not match what is in the manuscript.

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Eleven Reasons why Manuscripts are Rejected

اسباب رفض البحث للنشر بمجلة ما؟

- Poor experimental design and/or inadequate investigation.** An inadequate sample size, a biased sample, a non-unique concept, and scientific flaws in the study are common faults.
- Failure to conform to the targeted journal.** This is a common mistake. The focus of the manuscript is not within the scope of the journal and/or the guidelines of the targeted journal are not followed. This can easily be avoided by reading the targeted journal and reviewing the author guidelines.
- Poor English grammar, style, and syntax.** Though poor writing may not result in outright rejection of a manuscript, it may well influence the reviewer's and editor's overall impression of the manuscript. It has been shown that a well written manuscript has a better chance of being accepted.

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Eleven Reasons why Manuscripts are Rejected

اسباب رفض البحث للنشر بمجلة ما؟

- Insufficient problem statement.** It is important to clearly define and appropriately frame the study's question.
- Methods not described in detail.** Details are insufficient to repeat the results. The study design, apparatus used, and procedures followed must be made clear. In some cases it might be better to put too much information into the methods section rather than to put too little; information deemed unnecessary can always be removed prior to publication.
- Overinterpretation of results.** Some reviewers have indicated that a clear and "honest" approach to the interpretation of the results is likely to increase the chances of a manuscript being accepted. Identify possible biases and confounding variables, both during the design phase of the study and the interpretation of the results. Describe experimental results concisely.

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Eleven Reasons why Manuscripts are Rejected

اسباب رفض البحث للنشر بمجلة ما؟

- Inappropriate or incomplete statistics.** Using inappropriate statistical methods and overstating the implications of the results is a common error. Use an appropriate test and do not make the statistics too complicated. Quantify and present findings with appropriate indicators of measurement error or uncertainty (such as confidence intervals).
- Unsatisfactory or confusing presentation of data in tables or figures.** The tables or figures do not conform in style and quantity to the journal's guidelines and are cluttered with numbers. Make tables and graphs easy to read. Some editors may start by looking quickly at the tables, graphs, and figures to determine if the manuscript is worth considering.
- Conclusions not supported by data.** Make sure your conclusions are not overstated, are supported, and answer the study's questions. Be sure to provide alternative explanations, and do not simply restate the results.

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Eleven Reasons why Manuscripts are Rejected

اسباب رفض البحث للنشر بمجلة ما؟

10. **Incomplete, inaccurate, or outdated review of the literature.** Be sure to conduct a complete literature search and only list references relevant to the study. The reviewers of your manuscript will be experts in the field and will be aware of all the pertinent research conducted.

11. **Author unwilling to revise the manuscript to address reviewer's suggestions.** This can easily be resolved. Taking the reviewers' suggestions into account when revising your manuscript will nearly always result in a better manuscript. If the editor indicates willingness to evaluate a revision, it means the manuscript may be publishable if the reviewers' concerns could be addressed satisfactorily.

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Group Activity

- Explain which type of writing you **enjoy** writing?

- Explain which type of writing is **most difficult** for you to write?



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Thesis Parts

- | | |
|-------------------------|-------------------------|
| 1. Title page | 10. Materials & Methods |
| 2. Accreditation | 11. Results |
| 3. Dedication (option) | 12. Discussion |
| 4. Acknowledgment | 13. Conclusion |
| 5. Contents | 14. English Summary |
| 6. Table List | 15. References |
| 7. Figures List | 16. Arabic Summary |
| 8. Introduction | 17. Appendix /Annex |
| 9. Review of Literature | |

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Contents of a research proposal

- Proposal title
- Introduction (Project overview)
- Review literature (Background "rationale")
- Objectives
- Methodology
- Planned activities
- Schedule time (Timeframe)
- Monitoring and evaluation
- Project partners (if any)
- Budget
- Results vs. outcomes
- Dissemination

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THANKS FOR ATTENTION



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