



Research Methodology

CS 5001

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Lecture 4

Agenda

- **Review of Anatomy of Research Papers**
- **Project Details**
- **Sample Survey Papers**
- **Abstract Writing**
- **Sample Abstracts**
- **How to write a research paper**
- **Questions**



Reasons for not writing

- Difficulty knowing where to start
- Not knowing how to start
- Anxiety about writing skills
- Lack of confidence

What is an Abstract

- Abstract is a very concise statement of the major elements of your research project. It states the purpose, methods, and findings of your research project.
- An abstract is a condensed version of a full scientific paper

What is an Abstract

- Length: between 150 and 250 words.
- Layout: usually one single paragraph; font size is different from the main text.
- Position: usually at the beginning of the paper (but it can appear elsewhere e.g. in book of abstracts or online).

Abstracts are not...

- Not substitutes for the article and should not be cited as references
- Not a summary of the entire article; should present main finding
- Do not contain enough information for a critical evaluation of the research

Characteristics of an Abstract

- Accurate, coherent and readable
- Concise, specific and selective
- Self-contained, i.e, stand alone
 - Complete and consistent
 - No references
 - No tables or figures
 - No or few abbreviations (must be defined)
 - Conclusions should be based on data/info presented within the abstract.

Why should I know how to write abstract

- Helps you present complex information in a clear, concise manner
- Helps you read abstracts more effectively
- Helps you conduct research
- Helps you write abstracts for future publications
- Helps you condense report information into a short format

Four C's of Abstract writing

- **Complete** – it covers the major parts of the project/case
- **Concise** – it contains no excess wordiness or unnecessary information
- **Clear** – it is readable, well organized
- **Cohesive** – it flows smoothly between the parts

Why abstracts are rejected

- Dull topic, nothing new
- No context provided
- Small number of subjects
- All talk, no data (“results will be discussed...”)
- All data, no talk
- Poor readability
- Sloppy

Contents of an abstract

- Define purpose and scope of study, i.e, the question

Introduction

- Describe materials and methods used

Materials and Methods

- Summarize the results

Results

- State the conclusion and their implications

Discussion

Abstract Format

- Introduction
 - 2-3 sentences
 - Include the research question (hypothesis) or purpose at the end
 - Avoid jargon, excessive abbreviations
 - Assume reviewer(s) are not the most knowledgeable in the field

Abstract Format

- Methods
 - Include study design
 - Study population (#, age, M,F, inclusion criteria)
 - What was measured
 - How data was analyzed (if space), otherwise include during the talk/presentation

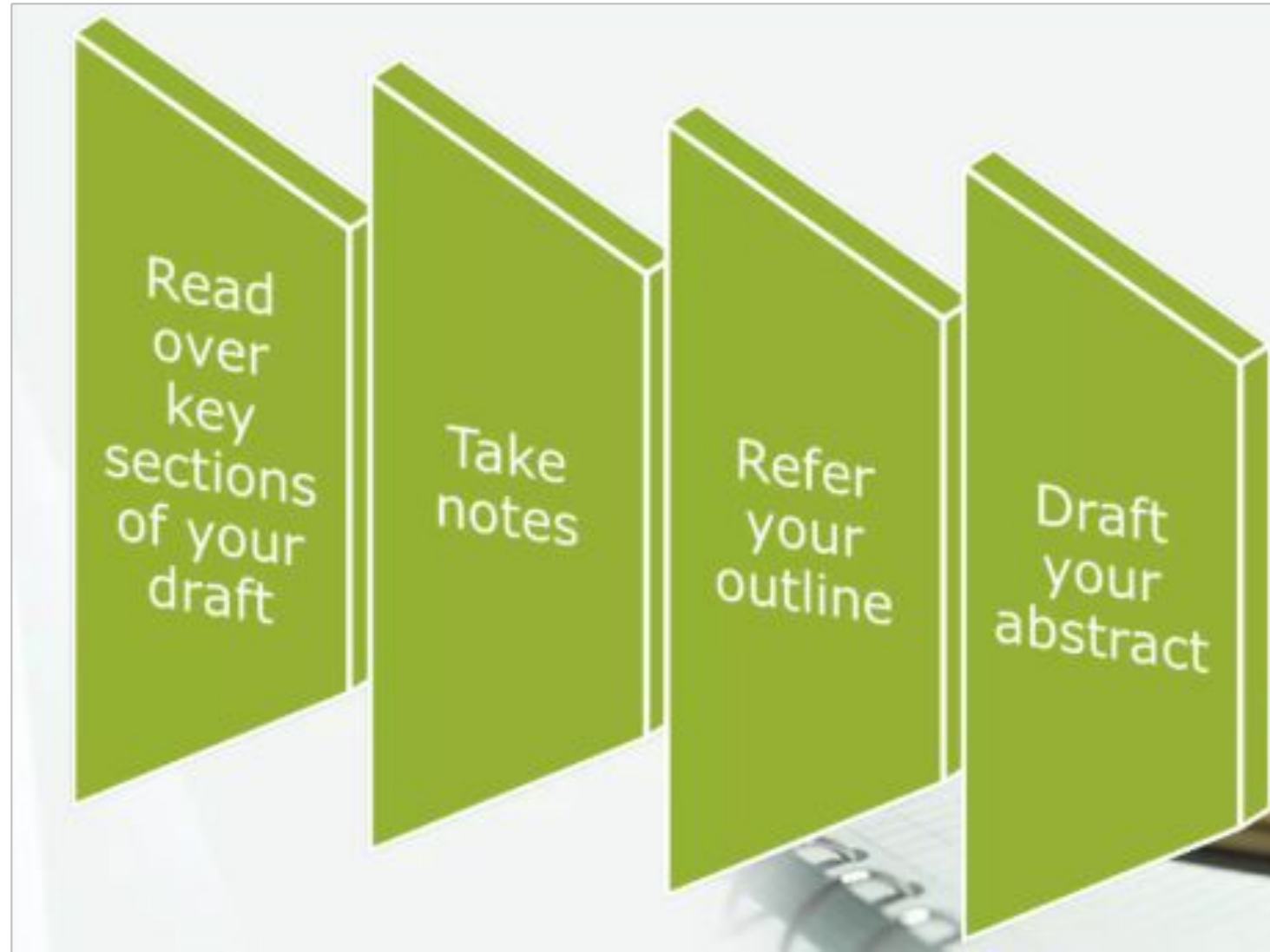
Abstract Format

- Results
 - Main finding of the study – in words
 - Give real numbers as well as significance

Abstract Format


- Conclusions
 - What do your findings mean
 - Do not repeat results
 - If you could have written your conclusion before you knew your results – you don't really have a conclusion

How to write an abstract




Contd...

Remember that an abstract typically contains: **topic, research question, methods, results and conclusion.**



Read your paper in its entirety: keep the above categories in mind and **underline the key points** as you read.



After you finish reading, **create your abstract step-by-step** based on your underlined material.

Writing the parts of an Abstract

Step- by step process:

1. Write 2-3 introduction sentences that explain topic, purpose, and research question(s).
2. Write 2-3 sentences describing your research methods (this may also include the type of data analysis you used).
3. Write 2-3 sentences describing the results / findings.
4. Write 1-2 sentences containing your conclusions and recommendations.

What not to include

- Information not contained in the original work
- References to other works
- Quotations from the original work or from other works
- Lengthy explanations of words and concepts
- Unexplained acronyms or abbreviations
- Tables and figures

Some writing tips

- Active voice is preferable to passive voice
“We studied 15 patients with ARDS.” is much better than
“Fifteen patients with ARDS were studies”
- Always use the full term before you refer to it by acronym
[for example, Orthotopic Liver Transplantation (OLT)]
- Write only one thought per sentence
- Eliminate unnecessary words
- Ensure that verb tenses are consistent and correct

Some writing tips

- Don't omit articles or other little words in an effort to save space.
- Avoid jargon
- Write in the third person singular.
- Use short sentences but vary sentence structure so that abstract doesn't sound choppy.
- Use complete sentences



Thank you

Questions?