Scientific Abstracts

Adapted from: https://adrianwallwork.wordpress.com, https://falconediting.com/en/blog/6-tips-for-choosing-keywords-for-your-scientific-manuscript, https://www.ref-n-write.com/trial/academic-phrases-handbook/

Scientific abstracts

What is an abstract?

A summary of the essential content + conclusions of your work

How long?

Word count approx. 200 words (depends on discipline, journal, publication type etc.)

Anything else?

5-8 keywords: to increase chances of your work appearing at the top of the search

Objectives

- To convince editors and reviewers that this paper should be published
- To convince potential readers that your article/report is worth reading

Abstract style

Personal/active (I, we, our) vs Impersonal or passive

- **Our** approach …

  The approach adopted in this work…

- **We** believe that these results represent …

  These results may represent…
  It would appear that…
  The evidence suggests….

- **We** developed XYZ …

  In the present study, XYZ was developed…

- **We** calculated the maximum flow rate using**…**

  The maximum flow rate was calculated using….

Abstract structure

CLASSIC STRUCTURE

Background context

Missing gap

Aim

Methods

Results

Conclusion

+ Keywords

Background context

Gives your reader information they need to know to understand your research topic and study.

Generates reader's interest in your research question and helps them understand why your study is important.

We/I/Our shouldn’t appear in the background context

Missing gap

All research, must in some way, fill a gap in the scientific literature

A gap is something that remains to be done or learned in the area of research

We/I/Our shouldn't appear in the gap

A gap might be:

- A lack of knowledge
- A new method that needs to be tested/compared to old methods
- A standard method that needs to be improved
- A study of a new system, material etc.

Example: Laborel-Préneron et al. (2018)

Background context

The effect of molds present in buildings on the health of the occupants is a major issue hence, when a building material is developed, its sensitivity to microbial growth should be assessed. However, few studies have investigated fungal growth on bio-based building materials with the resources available in a laboratory specializing in materials.

Missing gap

Other phrases that might help you form a gap statement are:

…has/have not been… (studied/reported/elucidated)
…is required/needed…
…the key question is/remains…
…it is important to address…

There are very limited studies on…
The study of this issue is rarely reported in literature…
There has been very little effort to…
Researchers are now left with the question of…
A number of questions remained to be answered…

Aims

1-2 very precise sentences

Clearly state that the aim/objective/goal of your research

Remember to use the infinitive of the verb after *aim:*

Our aim was/is to…
The study
aimed/aims to…
We aimed/aim to…
The aim of our study was to…

Methods

How was the research carried out?
What test methods did you use?

Standard practice to use the past simple.

We calculated…We compared…
The tension was calculated…

Present simple frequently used in maths articles.

We analyse…
The model is selected…

Results

What are your main results?
Your results must be linked to your aim.

Simple present can introduce your results

We show that…

Standard practice to use the past simple to describe *your* results,

We determined that as X increased Y decreased.

Present simple frequently used in maths articles.

We determine that as X increases Y decreases.

Conclusion

Future work: what is left to be done or what's the next step for the researchers?)

Implications of your research: perspectives, broader impact of your results)

DO NOT repeat your results!

Keywords

Focus on the main topic of your research

Include your techniques and/or specific methodology

Avoid keywords that are only one words (too ambiguous)
(e.g., prototype, material)

Be specific and use multiword ‘key phrases’
(e.g., Thermochemical energy storage)

Abstract tenses

Background context, missing gap

Use the ***simple present*** to express scientific facts not found by you

The effect of X on Y *is* a major issue...

Engineers often *assess* the change in X….

Use the ***present perfect/present perfect continuous*** to describe a situation that began in the past and is still true now.

Since 2015 attention *has focused* on ...

To date, there *has not been* an adequate analytical model ...

Aim and methods

Use the ***simple past*** (active or passive)

We analyzed one hundred materials… One hundred materials *were analyzed*…

We investigated heat sensitivity by… Heat sensitivity *was investigated* by….

The aim of the study *was to*

Use the ***simple present*** (active or passive)

We *aim* to…

We *calculate* the mass of the object…

The mass of the object *is calculated*…

Results

Use the ***simple past*** (active or passive)

We *showed* that as X *increased* Y *decreased*…

Three materials *were identified* ….

We developed…

Use the ***simple present*** (active or passive)

We *demonstrate* the…

We *determine* that…

The mass of the object *is shown*….

Conclusions

Use the ***simple present*** to say what you believe your work means
Use ***will*** for possible future implications

This study *provides* a good indication...

Engineers *will* no longer…

Use the ***present perfect*** (***active or passive***) to describe what you have achieved during your research.

We *have devised* a new approach to X…

A new approach to X *has been devised*…

Abstract – Check List

- Respect the word count
- The abstract is one paragraph
- List relevant keywords (5-8 words)
- 6 sections are present in the following order: context, gap, aim, methods, results + conclusion
- Sections are coherent; the conclusion is based on the results and responds to the aim
- The abstract is informative: not too vague, not too detailed, a stand-alone summary of your research
- Write in plain English, so your abstract can also be understood by non-specialists
- Formal writing (no contractions, avoid: *like*, *little*, *big*)
- Use the active and passive voice appropriately
- Consistent and correct tenses
- Avoid acronyms, abbreviations and citations
- Text should be concise, clear and interesting!