

## ◆先輩からのアドバイス◆

### How to write a scientific paper

Developing the skills to write an effective and clear scientific paper is fundamental for a student, especially for those interested in research and science. Writing a scientific paper, to be submitted to a peer-review process, can be a challenging task for beginners. You will have to divide your manuscript in the correct sections: Introduction, Materials and methods, Results, and Discussions.

Here are some simple tips to keep in mind:

A good Introduction answers these fundamental questions:

What did other people do? What did you do? Why did you do it?

The introduction starts with an overview about the topic you are going to talk about. For example, if you want to present a research about coral diseases in Okinawa: explain what coral reefs are, why they are important, and why coral reefs are vulnerable to diseases. Finally, clearly state the objectives of your research.

In the Materials and Methods section, you will have to explain everything you did in detail, step by step, including your experimental protocols and the motivations behind your decisions. How many samples have you collected, where, when, how and why. These are all questions that should find an answer in this section. Try to be precise and please, keep in mind that you don't have to invent everything from scratch: the beauty of science is that you can reference the methods that other authors used before.

In the Results section, you will explain what you have found. Do not add your opinions, or comments, just present your results as clearly and objectively as you can. Remember that tables and figures can

help you showing your data without making your writing long and convoluted dissertations. Keep your figures clear, make sure they are understandable without looking at the main body of the manuscript.

Remember when I told you to state your results without commenting? Now it's time for dissertation! Make your Discussions interesting by explaining the significance of your findings. Why are they important? What's their meaning? How do they compare with results from other scientists and what new questions arise from your results? You can be a little speculative here, but remember: always base your speculation on your solid results and on previous studies from other researchers. And don't forget to reference them.

In the end, like every other skill, scientific writing requires some practice. The first time you write a paper, it will feel like you are climbing a mountain. The second time, the mountain will become a gentle hill, and, from there, it will be a smooth sailing.

Good luck with your career and don't forget: if you need some extra help when writing your first paper, the help desk at the university library is here to help you!

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