

Writing a thesis

Bachelor's degree in Applied Mathematics
Master's degree in Mathematics
University of Verona (Italy)

A Brief Guide to Writing Your Thesis

The first thing to keep in mind is that the intention of writing a thesis is for you to gain the experience of independently researching, in depth, a topic that you find intriguing and then making a formal presentation of your results. Both of these are things that a Mathematician will have to do during his/her professional career — you need to be prepared! Think of it not as an *obstacle* to be overcome but rather as an *opportunity*.

Once you have chosen your thesis topic (in consultation with your Advisor), your thesis work will divide itself into three phases:

Investigate: Read the relevant articles and/or book chapters. If required implement programs to be able to do tests and experiments. Your Advisor will assist you with this process.

Understand: Almost always research articles will assume basic background facts. You most likely will have to go back and review this material. Make sure you have more than just a superficial understanding of what's going on.

Explain: This is the writing phase and the one with which you probably have the least experience. Your Advisor can provide you with some guidance here, about what topics to discuss and how to organize them into chapters/sections and so on. But one useful guideline is to “write what you know, and know what you write”. Don't write anything that you don't understand. In fact during the presentation of your thesis you should be prepared to answer questions on anything that you write. If you write something like “it is easy to see that ...” someone might ask you to explain it! Make your presentation of the material so that someone reading it will be able to clearly *understand* the subject, like

you would have liked all your texts and notes to have been during your courses!

Some other things to be careful about: use your own words and *only* your own words. Don't copy sentences from the Internet. First of all what another person writes is copyrighted and is their intellectual property. Copying is also plagiarism and even illegal. It also prevents you from really understanding something and being able to explain it — two skills that will be absolutely essential during your professional careers! You can quote an author, but then you have to say explicitly that you are doing so and give a citation. It may be convenient to take a publicly available figure from the Internet, but then again you have to explicitly state its source. Even if you follow closely the presentation of some text or article you should acknowledge this. Give credit to whom it is due!

If you have any doubts or questions don't hesitate to ask your Advisor — that's what they're there for!

Good luck, and enjoy the experience!