Writing the Introduction and Background Section of Your Thesis

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The introduction section is “the engine that drives the rest of the document”*

Start out with a one-paragraph overview of your project that contains all relevant info
Provide sufficient background to allow the reader to understand context and significance
Acknowledge previous work
Explain briefly why you chose your approach
State any assumptions that you made
Preview your principal findings
Outline the structure of the thesis

*Barbara von Diether, EdD
Getting started...

“First, analyze your audience. What do they already know and what are you going to have to explain, so they understand what you did and why it is important?” —cme

“Always outline this section before you write the rest of the paper—you have to know what the story is behind the paper before you start writing.” —BD

In the first paragraph

Explicitly state the goal and outcome of your project
- What you did
- Why it is important (motivation)
- The physics context—how does your work fit in the bigger picture?
- What you contributed (impact)—what’s new, better, faster, cheaper because of what you did?

Write single sentences that contain all relevant information for each item in accessible terms

You’ll address each of these items in more detail later; this paragraph provides an important orientation for the reader
Next, provide background information to explain the motivation and context

If your project is part of a larger effort, explain what is motivating the larger project and how your project fits in.

Explain how your project is related to previous work—what questions does it address?

Acknowledge previous work by providing adequate references†

†Every time you make a statement, ask yourself, “Says who?” And then back that statement up with a reference.

Acknowledge previous work by providing adequate references

Appropriate references are journal articles and books that are readily accessible to readers.

Wikipedia references do not count.

All cited work should be directly relevant to the context and motivation of the thesis—do not annoy readers by referencing everything you ever read on the subject.

“Common knowledge” (CK) does not have to be referenced, but CK is context-dependent‡

‡If you’re not sure, cite!
What must be referenced?§

Any nontrivial assertion

Relevant work that you build on

Work that reached conclusions similar to your own (adds authority to your work)

Work that disagrees with your assumptions, results, or conclusions (be objective)

Work that enables the reader to investigate an idea in greater detail


Next, summarize what you did and what you found out

State what method(s) you used and why you chose it (them)

State any assumptions you made

Summarize your principal conclusions

Make a clear demarcation between “old stuff” (background and motivation) and “new stuff” (what you did)
Summarize your main conclusions

What did you learn?
Tell the reader explicitly what you contributed
Talk about the impact of this work

Optional: give a narrative “table of contents” for the rest of your thesis

“In Chapter 2, details are presented of the design and construction of the apparatus and the methods for growing the thin films. Chapter 3 provides the results of the annealing process and its effects on thin-film properties...”
Break your narrative into logical subsections (outline!)

Use content-rich subheadings to guide the reader

Make sections readily identifiable by graphical highlighting

“I like to put a schematic cartoon or two in the introduction—it helps the reader a lot.” —BD

Some final advice...

“This section is ultra-important, especially for longer papers. Referees and editors are often strongly influenced by this section.” —BD

“Cogita ante scribere” — cme ("Think before you write")

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