

# How to get a PhD

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## To get a PhD you have to...

- find out what is needed.
- have the determination to carry it out.
- take responsibility for your progress.
- have a degree of single-mindedness.

## What's Needed?

To get a PhD you must write a thesis (approx. 100-200 pages). It will be a unified body of work such as could reasonably be achieved on the basis of three year's postgraduate study and research and should:

- be **original**, making a significant contribution to knowledge or understanding in the field of study.
- contain material **worthy of publication**.
- **reflect a comprehensive appreciation** of relevant literature.
- **exercise critical judgement** with regard to both the candidate's work and others in the same general field.
- be **literate** with **adequate references**.

GOOD NEWS!!!

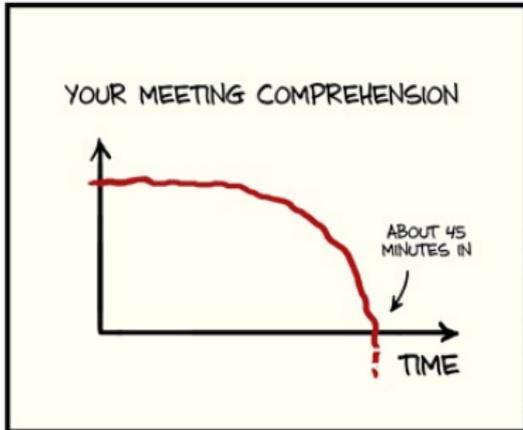
You do **NOT** have to make an enormous breakthrough which shakes the foundations of mathematics or statistics

# Thesis assessment

- It will be read by **two** examiners appointed by the university one *internal* and one from another university. The internal examiner will not be your supervisor.
- There will be an oral **viva voce** examination (2-3 hours typically) in which you will have to defend the material in your thesis and show general knowledge of the work and its wider context.

# Interacting with your supervisor

- Meet regularly.
- Prepare for your meetings - come to each meeting with:
  - List of topics to discuss.
  - Plan for what you hope to get out of the meeting.
  - Summary of what you have done since your last meeting.
  - Notes from your previous meetings.
- Always be honest about your progress.



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## Interacting with your supervisor – not yet done

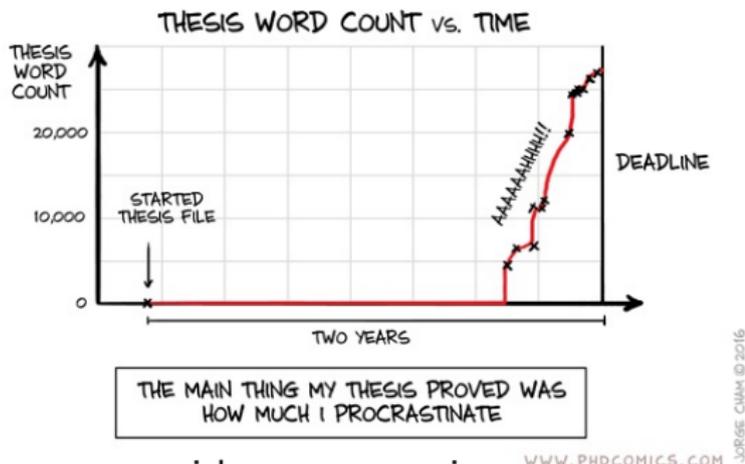
- Always show your supervisor the results of your work as soon as possible.
- If you disagree with your supervisor, state your objections or concerns clearly and calmly



- Each of you will have a unique relationship with your supervisor.

# Caveats

- All research involves risk – your project can fail!!
- Research takes MUCH longer than you feel it ought.
- Your rate of progress will vary wildly.
- Do not spend all of your time on literature review.
- Break down writing your thesis into manageable stages.



- Do not lose contact with your supervisor.

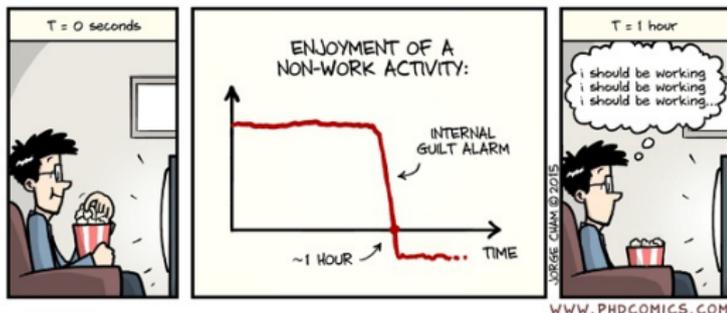
## Active learners

You must make the transition from the passive mode of learning that traditional lecture courses encourage to an active and critical learning style. When you read a paper or listen to a research talk, ask yourself these questions:

- What was really going on there – what was the motivation for doing this work and what exactly was accomplished?
- From where did the author seem to draw the ideas?
- What would be a reasonable next step to build upon this work? What questions are left unanswered?
- What ideas from related fields might be brought to bear upon this subject?
- Can I use any of these techniques in my work?

## Daily Life

- You need constant feedback. Discuss your research with anyone who will listen (even when they do not understand!).
- Explain your work to fellow students – if you cannot explain it there may be a reason...
- Explaining and writing down your ideas is the best way to debug them and can lead to new ideas.
- You will have to deal with isolation and loneliness - remember you are not alone - talk to people - you are part of a research community.
- You will have to deal with getting a good work-life balance.



# Seminars and talks

- Regularly go to seminars, even if you think you won't understand the talk.
- Write down something about the talk, even if all you can write down is the general topic and the technique they used.
- You can also learn from the speaker's presentation style, what was good, (or bad!!). ;
- Ask questions



So...

