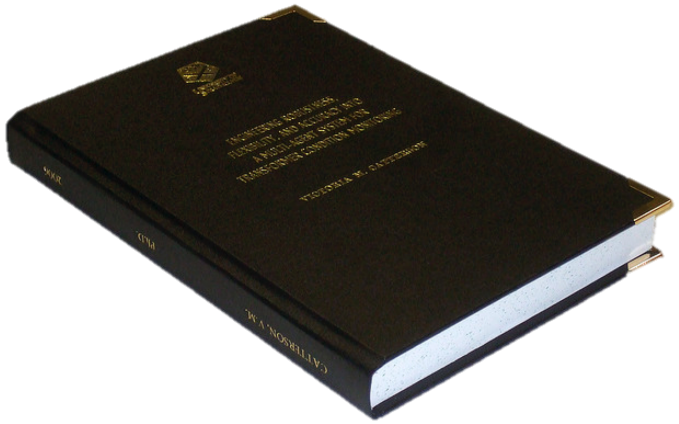
Writing a Thesis

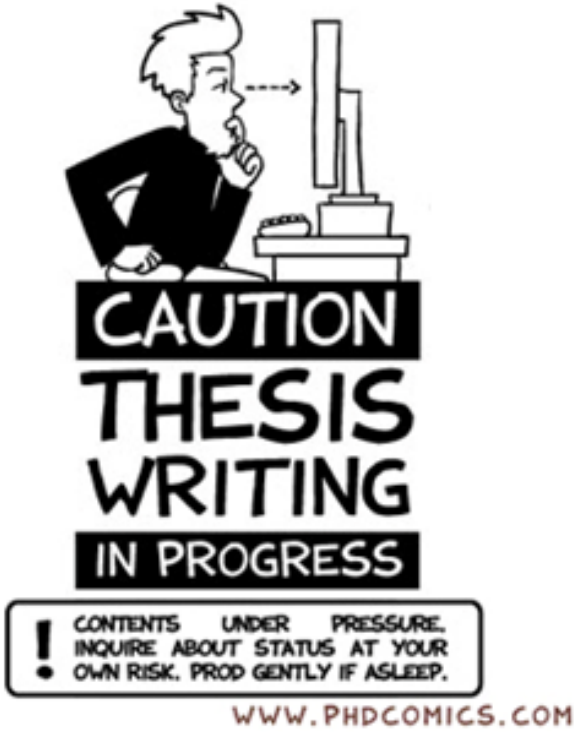


Matthew J Allen, VetMB, PhD

Professor of Small Animal Surgery

Outline

- What is the thesis for ?
- Who is the thesis for ?
- Planning the thesis
- Writing the thesis
- Editing, proofing and polishing
- Timelines
- Useful resources



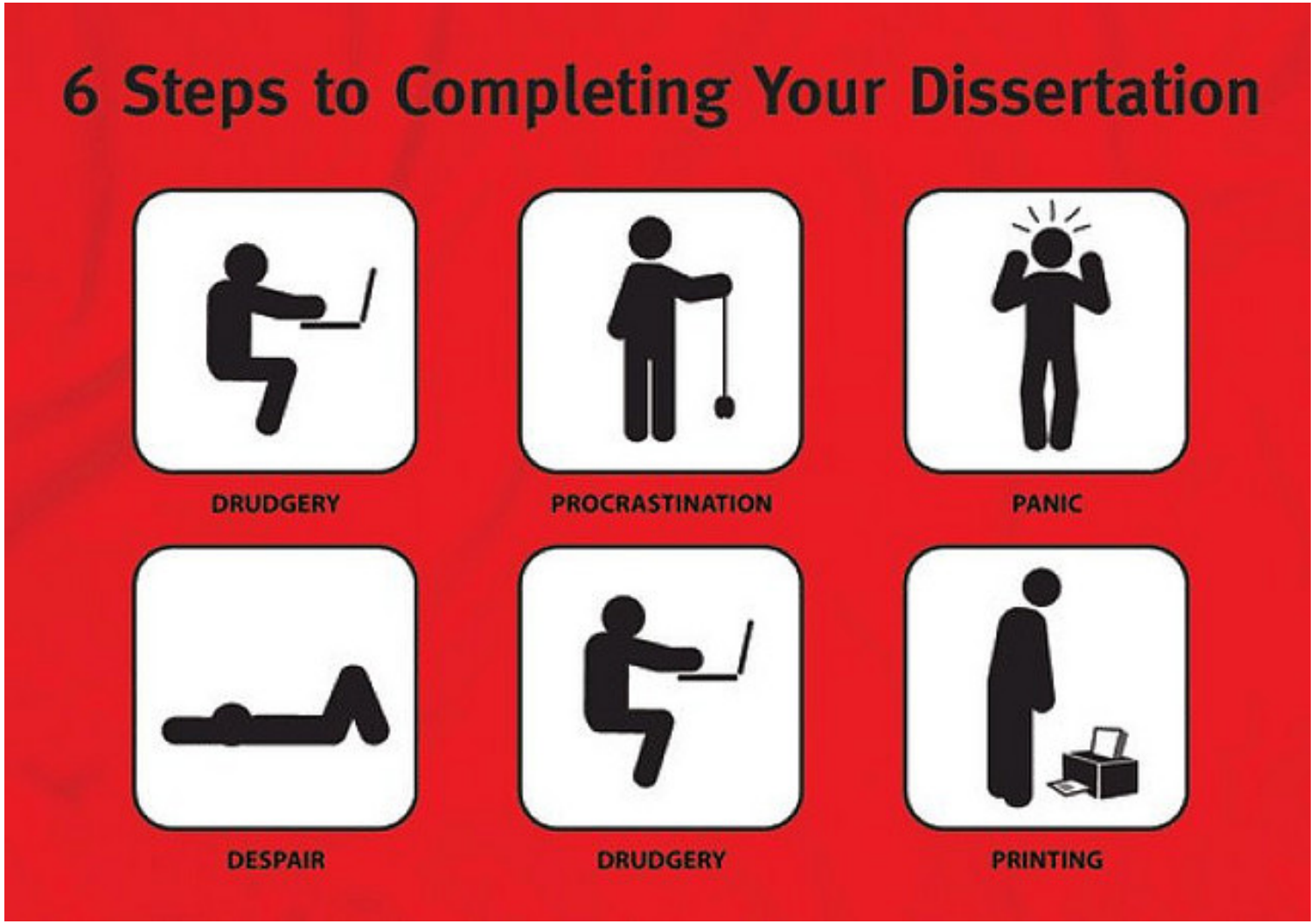
What is it for?

- An attractive book end?
- A record of your hard work?
- A contribution to the field?
- A permanent resource for the lab?
- A way of making you collect thoughts together ahead of publication?

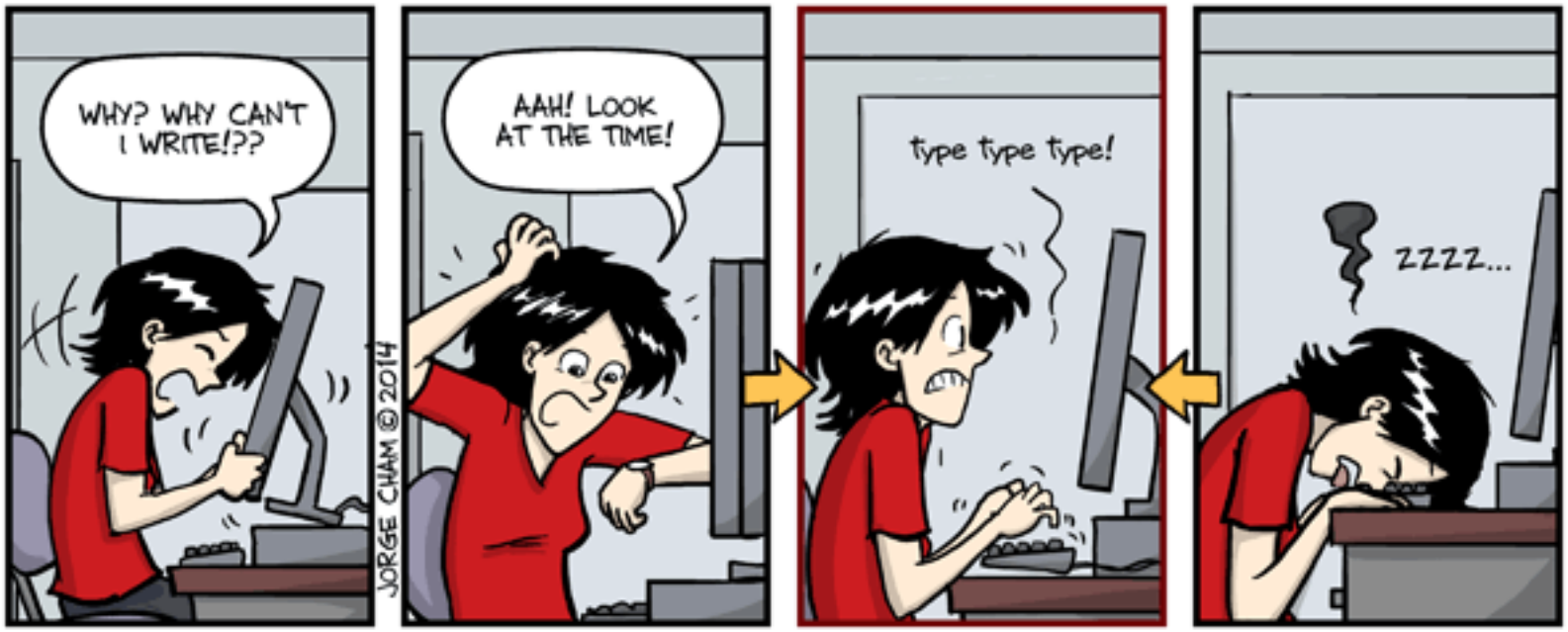
Who is it for?

- YOU!
- Your audience
  - *PI and lab members*
  - *Your future colleagues (here, elsewhere)*
  - *Your funder(s)*
  - *Competitors in the field*
- Your support team (parents, relatives, friends)

Planning


6 Steps to Completing Your Dissertation
DRUDGERY
PROCRASTINATION
PANIC
DESPAIR
DRUDGERY
PRINTING

Planning



WRITING: THE THING THAT HAPPENS IN BETWEEN EXHAUSTING YOUR DEADLINE AND EXHAUSTING YOURSELF.

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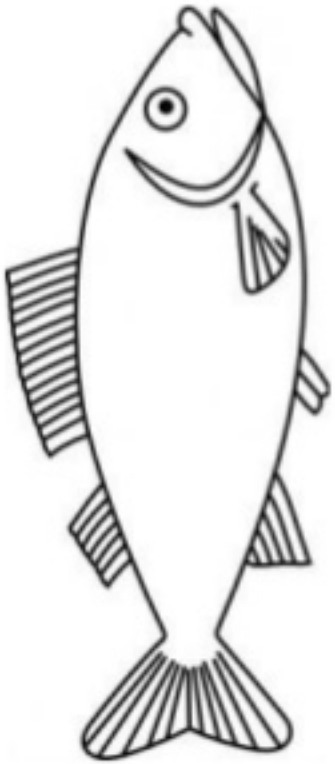
Planning

- Start early and work steadily
- Do not underestimate the total amount of time that this will take
- Get hold of examples of really good theses and find out what makes them good
- Stay in touch with your advisor
- If you have problems, communicate

Structure/Anatomy



- **Title**
- **Abstract**
- **Keywords**

Make them informative, attractive and effective

- **Main text (IMRAD)**
- Introduction
- Methods
- Results
- And
- Discussions

Make these sections consistent, chapter by chapter, and use text to link them and create a narrative. Preserve the same formatting across all chapters

- **Conclusion**
- **Acknowledgement**
- **References**
- **Supplementary Data**

Word Limits

- Follow local rules and check before you start
- PhD: up to 60,000 words (80,000 by special permission)
- MSc: up to 40,000 words.
- Excludes figures, photographs, tables, appendices and bibliography.
- Double or one-and-a-half spaced, single- or double-sided

Title

- **Succinct**
- Focused
- Appropriate and relevant to the topic that is to be presented
- Interesting (but not different for the sake of being different)

Abstract

- Do not underestimate the importance of this
  - *Maybe less so for examiners (we have to read it)*
  - *Definitely true for casual readers (they can flee)*
- Must highlight the significance of the work
  - *What?*
  - *Why?*
  - *How?*
  - *So what?*

Introduction

- Lays out the background – sets the scene and forms the foundation
- It **establishes the case**
- A long background section can become incoherent –
  - *Make effective use of sub-headings*
- Show that what you are doing is necessary and that your approach is sound

Literature Review

- Long bibliography ≠ good thesis (we don't weigh theses)
- The goal is to demonstrate that you can identify, retrieve, critique and assimilate the information
- Make sure you include the key source (foundation) references – not just the 2016 papers!

The Hypothesis

- Carefully designed
- Relevant and testable
- It forms the central tenet around which you build your experiments
  - *You may have one overarching hypothesis, or one for each chapter*
- Either way, ensure that there is consistency and that they do not conflict internally

Materials and Methods

- Can be started almost immediately - quick win
- Must be complete enough to allow for someone reasonably trained to repeat the work
- Does not have to be exhaustive
  - *Can include SOPs in Appendix materials*

Results

- These sections can also be populated early on
- Be consistent with regard to presentation style
  - *Present results logically*
- Include key results in the body of the thesis
  - *Source data may be included in Appendix materials*
- Do not mix results with Discussion

Discussion

- This is where you bring it all together - it is the "big reveal"
- Start with the major findings – "sell" them!
  - *Relate these back to the hypothesis*
- Discuss the limitations (or the examiners will!)
- Describe the next steps (even if you won't take them)

Style

- Unlike a lab notebook, the thesis is supposed to tell a story
  - *You can leave things out!*
  - *You do not need to present data in chronological order*
- You are **telling a story** – make it logical and make it flow
- Try to make it look like you had a plan from the start (even if this is not how it felt!)

Style

- Scientific prose is not narrative, *but*
- You do need to engage the reader(s)
- Follow the 3 Cs
  - *Concise, clear, comprehensible*
  - *Might also try for compelling* ☺

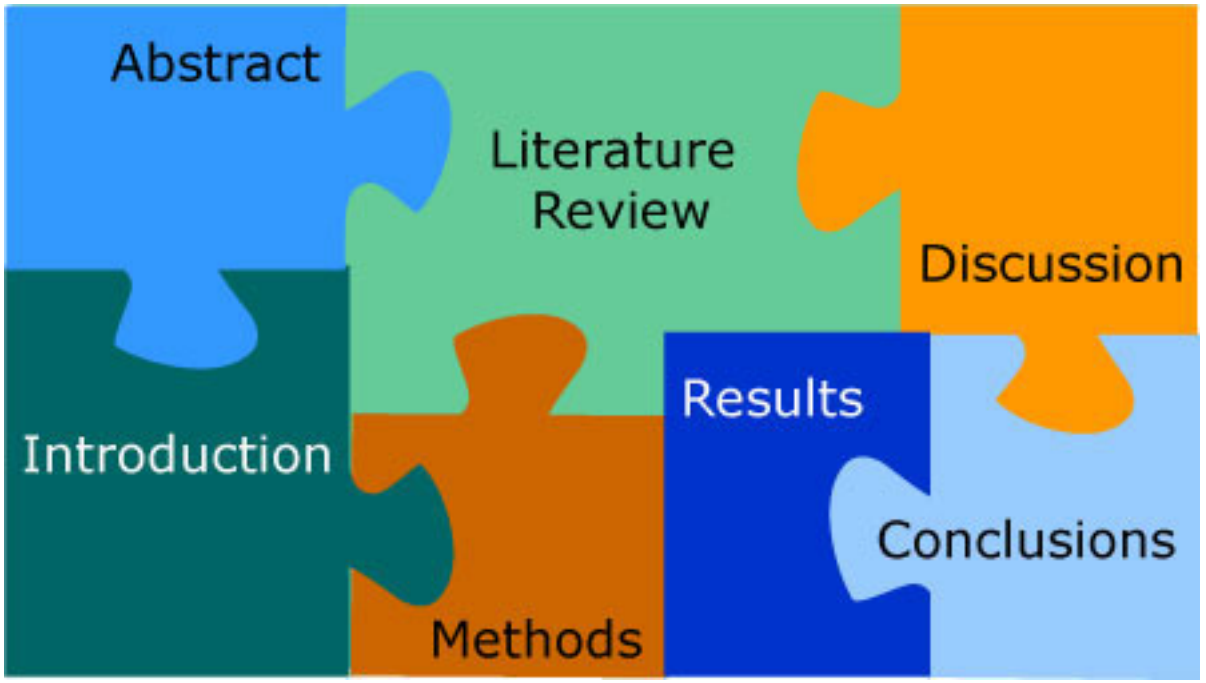
Style

- Scientific writing takes practice
  - *Use the first-year report, conference abstracts, papers to hone your skills*
- Short, clear sentences
  - *Avoid run-ons where possible*
- Avoid first person
- Avoid clichés and colloquialisms
- Avoid hyperbole

References

- Bibliography should be current, complete and *critical*
- Make use of some sort of bibliographic management system
  - *RefWorks, EndNote, Mendeley, Zotero*
- Matters less which one, only that you can use it effectively
- Back. It. Up. Enough said…

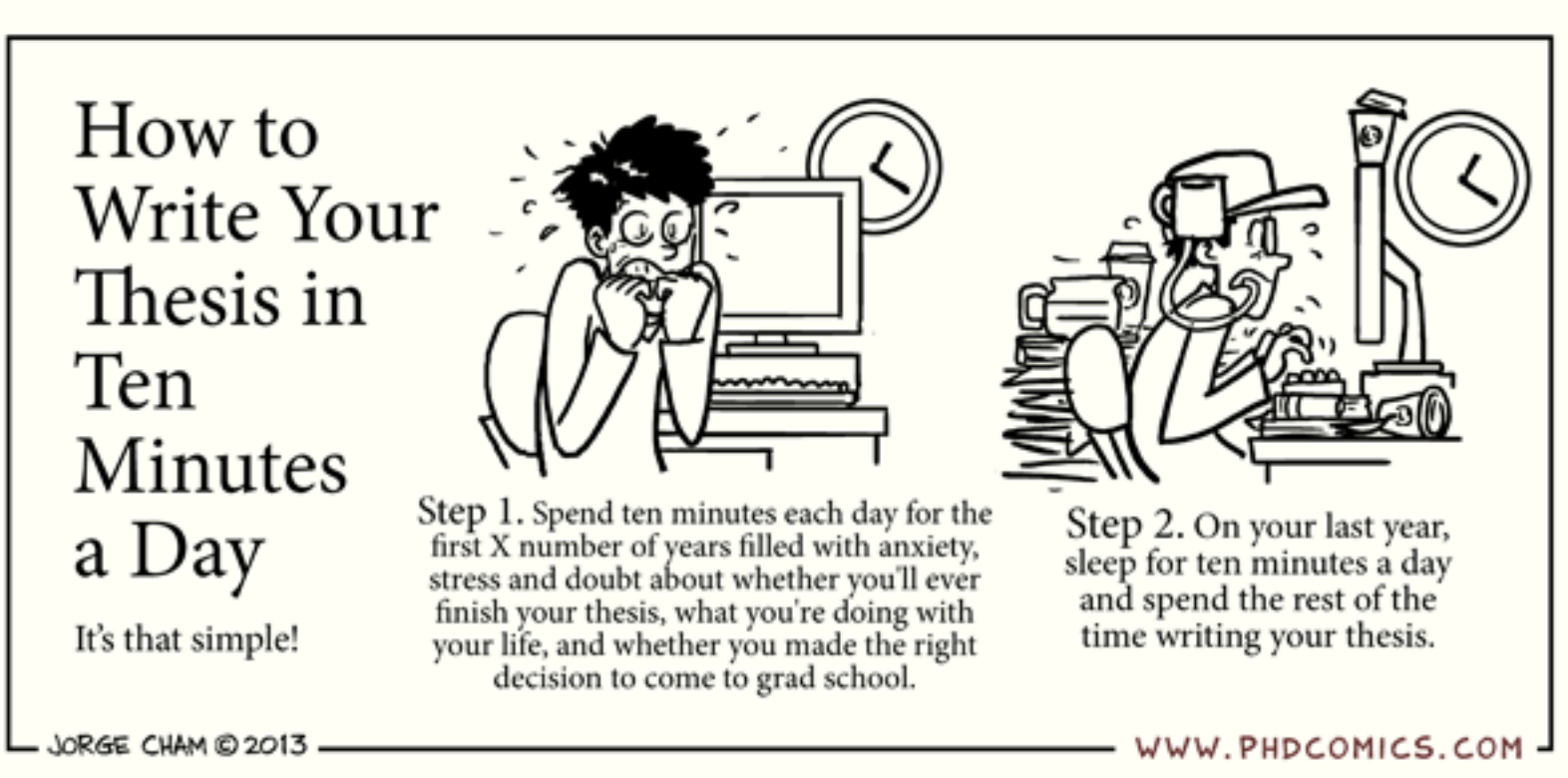
The Goal


Abstract
Literature Review
Discussion
Introduction
Methods
Results
Conclusions

Grammar

- No excuses for badly grammar in your thesis
- It is a permanent historical document and can haunt you for years to come
  - *Take the time to edit it appropriately*
- If English is not a first language, seek guidance early on with your writing
  - *Don't expect your PI to edit the whole thing in one go – chapter by chapter may be best*

Timelines


How to Write Your Thesis in Ten Minutes a Day
It's that simple!
Step 1. Spend ten minutes each day for the first X number of years filled with anxiety, stress and doubt about whether you'll ever finish your thesis, what you're doing with your life, and whether you made the right decision to come to grad school.
Step 2. On your last year, sleep for ten minutes a day and spend the rest of the time writing your thesis.
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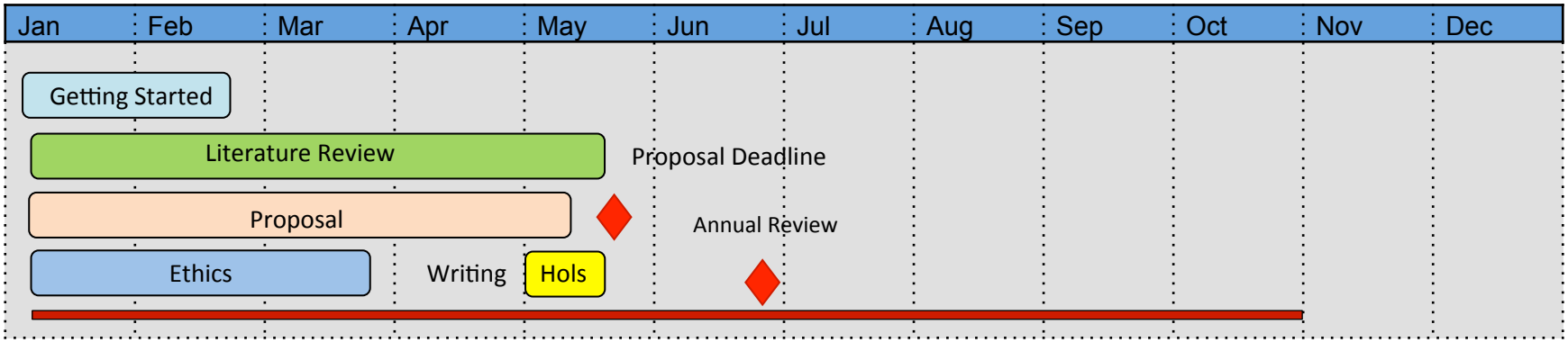
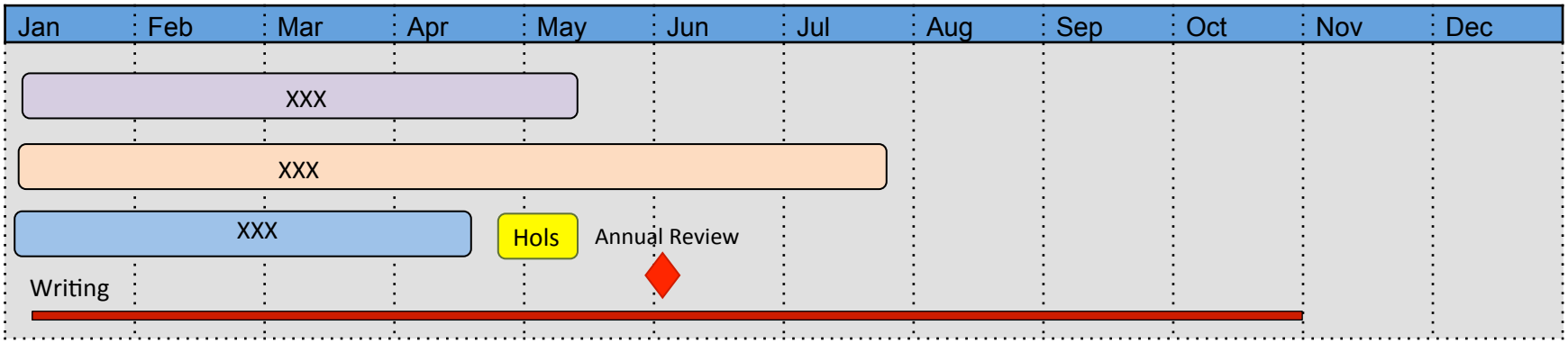
Timelines

- Very hard to predict at the start
- Talk to other students, advisors etc.
- Break work down into smaller packets
- Set deadlines – with yourself but also with supervisor, colleagues etc.
  - *These will make you accountable*
  - *Allows others to check in with your progress and identify issues early*

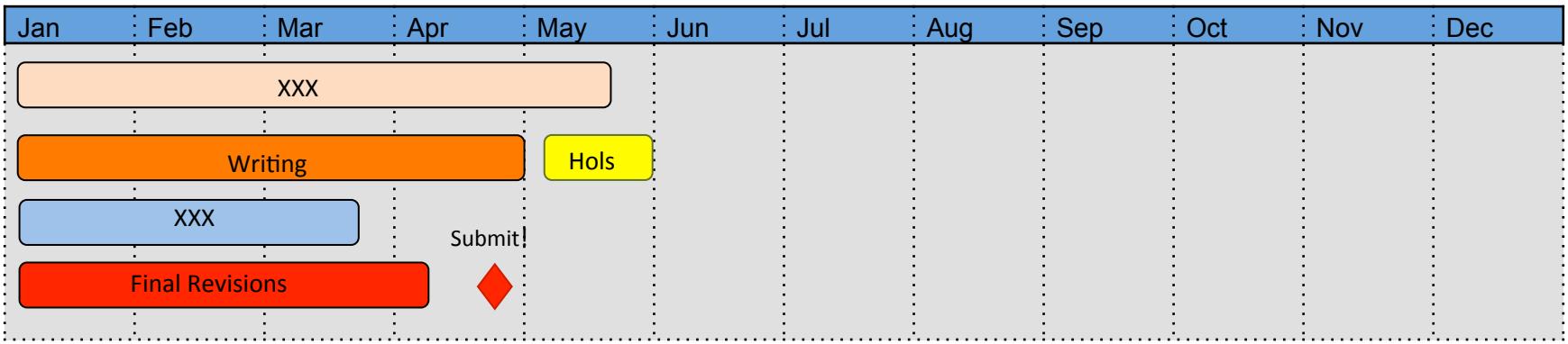
Year 1



Year 2



Year 3



Writing Up


My thesis is written in
ow!
Blood
Sweat
what am i doing with my life??
Tears
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and COFFEE.
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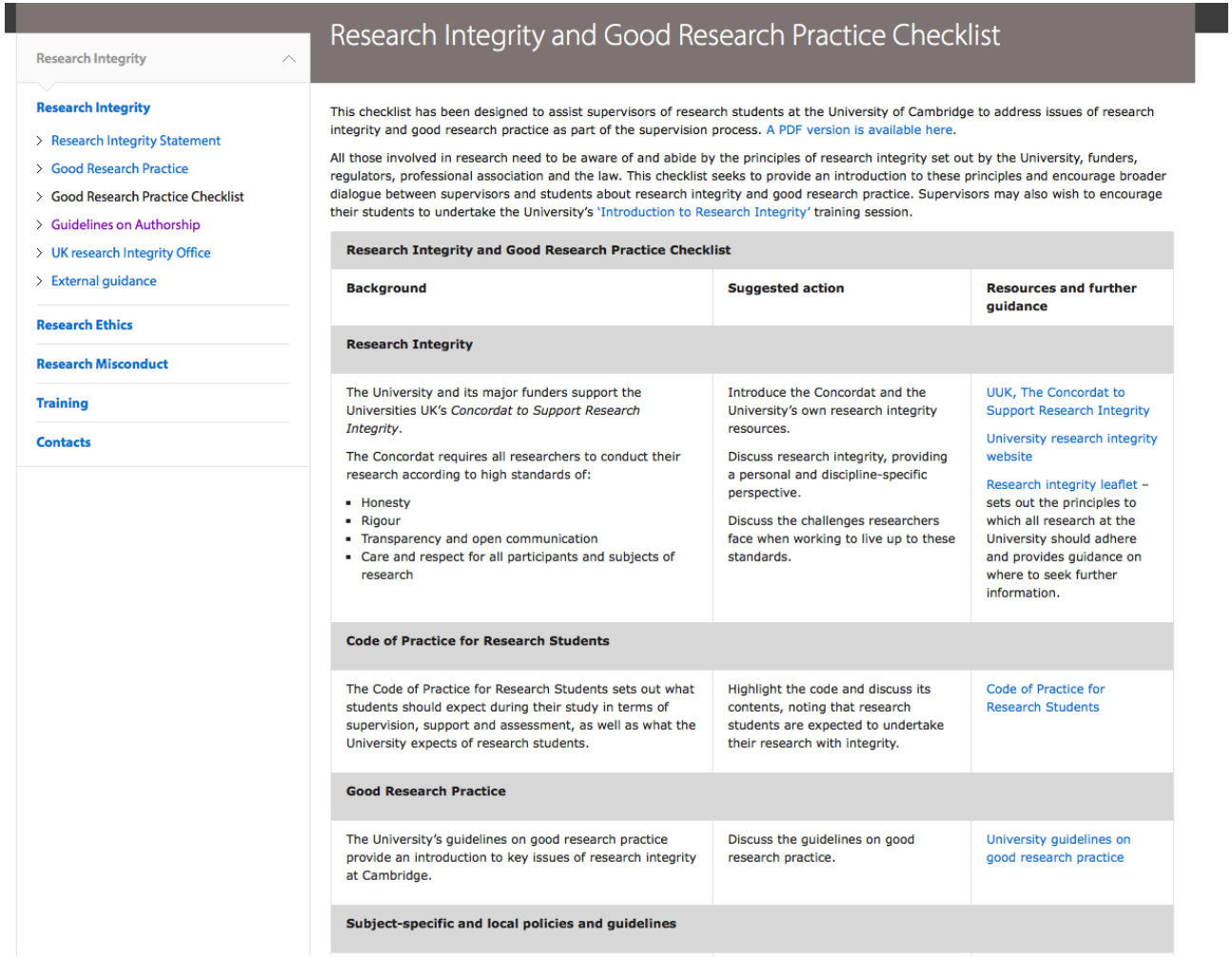
Research Integrity



Research Integrity

- **Research Integrity**
- Research Integrity Statement
- Good Research Practice
- Good Research Practice Checklist
- Guidelines on Authorship
- UK research Integrity Office
- External guidance
- **Research Ethics**
- **Research Misconduct**
- **Training**
- **Contacts**

Research Integrity and Good Research Practice Checklist

This checklist has been designed to assist supervisors of research students at the University of Cambridge to address issues of research integrity and good research practice as part of the supervision process. A PDF version is available here.

All those involved in research need to be aware of and abide by the principles of research integrity set out by the University, funders, regulators, professional association and the law. This checklist seeks to provide an introduction to these principles and encourage broader dialogue between supervisors and students about research integrity and good research practice. Supervisors may also wish to encourage their students to undertake the University's 'Introduction to Research Integrity' training session.

Research Integrity and Good Research Practice Checklist		
Background	**Suggested action**	**Resources and further guidance**
Research Integrity		
The University and its major funders support the Universities UK's *Concordat to Support Research Integrity*. The Concordat requires all researchers to conduct their research according to high standards of: ▪ Honesty ▪ Rigour ▪ Transparency and open communication ▪ Care and respect for all participants and subjects of research	Introduce the Concordat and the University's own research integrity resources. Discuss research integrity, providing a personal and discipline-specific perspective. Discuss the challenges researchers face when working to live up to these standards.	UUK, The Concordat to Support Research Integrity University research integrity website Research integrity leaflet – sets out the principles to which all research at the University should adhere and provides guidance on where to seek further information.
Code of Practice for Research Students		
The Code of Practice for Research Students sets out what students should expect during their study in terms of supervision, support and assessment, as well as what the University expects of research students.	Highlight the code and discuss its contents, noting that research students are expected to undertake their research with integrity.	Code of Practice for Research Students
Good Research Practice		
The University's guidelines on good research practice provide an introduction to key issues of research integrity at Cambridge.	Discuss the guidelines on good research practice.	University guidelines on good research practice
Subject-specific and local policies and guidelines		

www.research-integrity.admin.cam.ac.uk/research-integrity/research-integrity-and-good-research-practice-checklist

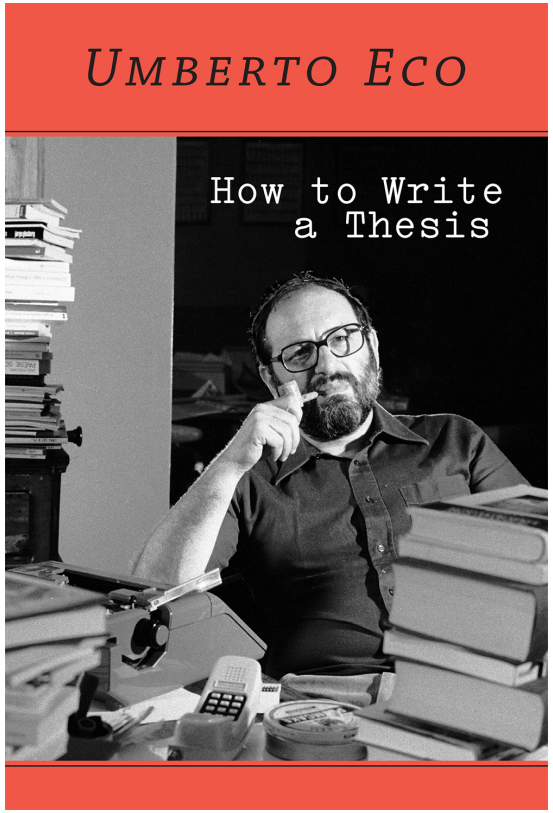
Plagiarism

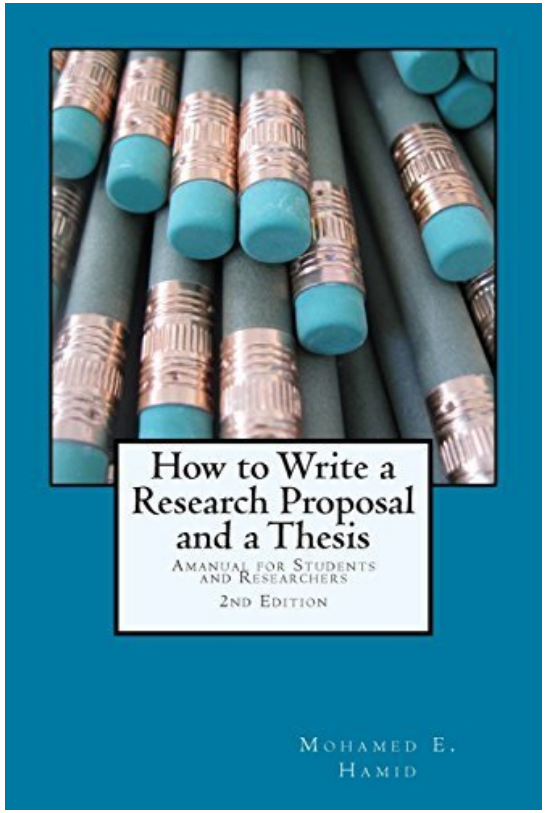
- *'This dissertation is my own work and contains nothing which is the outcome of work done in collaboration with others, except as specified in the text and Acknowledgements'.*

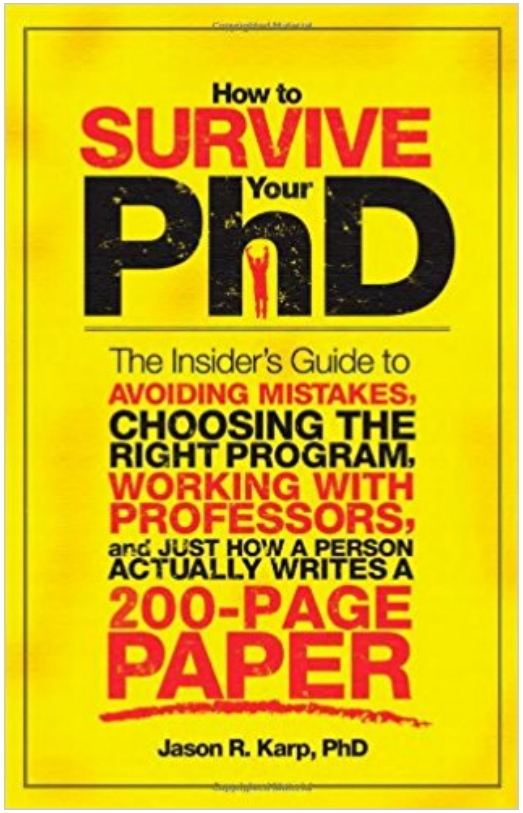
Conclusions

- This is the single most daunting writing exercise you will take on
- It requires commitment, focus, creativity
  - *find a suitable "writing space"*
- Early planning and steady progress will make this much easier
- Stay in regular contact with your adviser
- Write and review in chapters

Useful Resources







Additional Resources

- Ruger S. How to write a good PhD thesis and survive the viva
  - http://people.kmi.open.ac.uk/stefan/thesis-writing.pdf
- Stanley D. Planning your PhD
  - https://www2.le.ac.uk/colleges/ssah/documents/research-training-presentations/DS%20Planning%20your%20PhD.pdf
- PhD Toolkit
  - http://www.ithinkwell.com.au/PhDToolkit