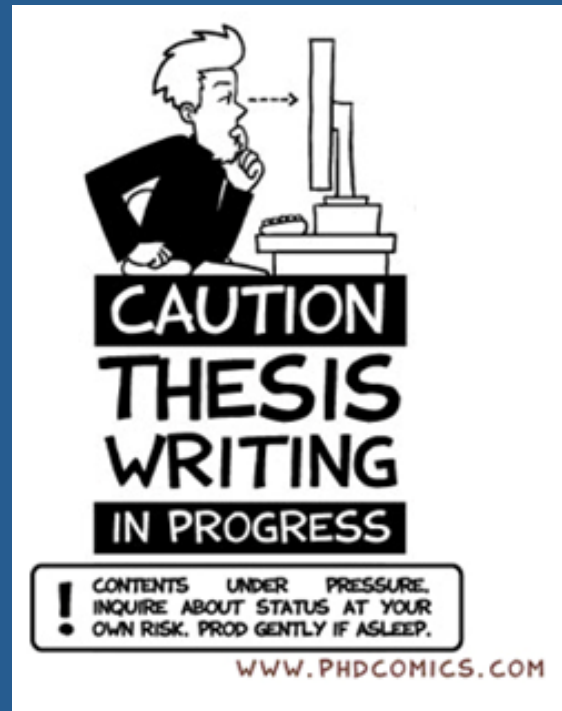


# HOW TO WRITE A PHD



Marie-Claude  
Boily  
DIDE, ICL

Adapted from Geva Greenfield's lecture

# TOPICS

- Before & During writing-up
  - Requirements & Timeline
  - Content
  - Style and form
  - What to aim for – Expectations
  - Tips & pitfalls
  - Final product and submission

# PHD → THESIS

- High quality presentation that reflects the hard work & new knowledge & expertise acquired during the PhD
- What is a PhD?
  - In-depth study & critical examination of a specific topic
  - Original and creative piece of research developed autonomously
  - Provide new knowledge and useful discoveries
  - Work of publishable quality in scientific journals or international meetings
    - **Thesis should reflect this**
  - Exercise of patience & frustration (not afraid to start again)
  - Learn and develop skills to navigate the unknown & be your own judge
  - Opportunity to make friends and new colleagues (build network)
    - **Use this to your advantage when writing the thesis**

# PHD THESIS

- Before starting
  - Find your bearings
  - Revise relevant information from College website on the thesis and viva
  - Reflect on what makes a good thesis : expected content and form
  - Read examples of theses
  - Read the recent literature
- Getting started
  - Make a plan – Content and timeline
  - (Update) Thesis content - feedback from supervisor
  - Make a writing plan /list of chapters & main sections
  - Scheduling (supervisor feedback and proof reading)
  - Make a checklist & timeline : content & admin issues
  - Budget sufficient time

# REQUIREMENTS (1)

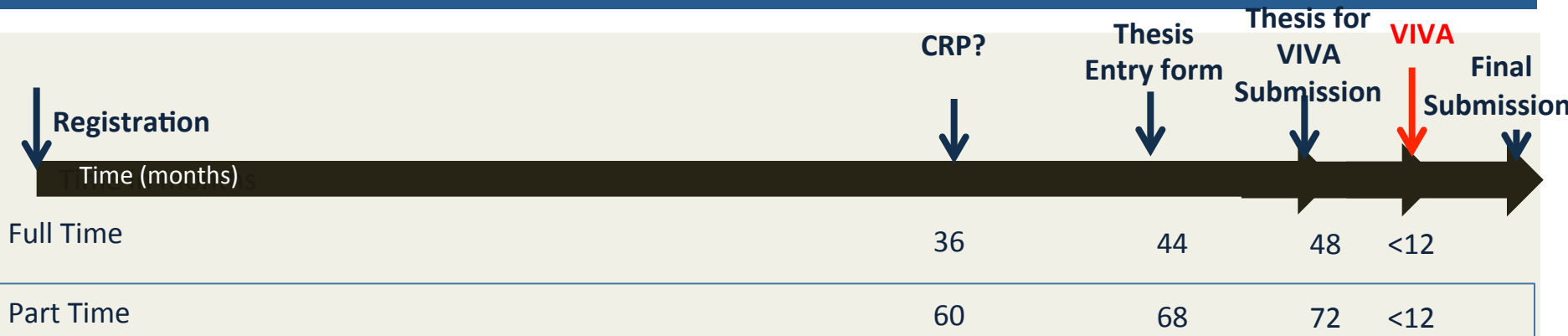
- The thesis shall:
  - Candidate's own account of his/her work – mostly accomplished after the PhD registration
  - Sole or collaborative work - Declaration of own sole or shared work<sup>(2)</sup>
  - Not submitted for similar degree elsewhere
  - Not be a series of papers – published work can be included
  - Acknowledge the work of others or self published work: Copyright issues (permission & declaration for 3<sup>rd</sup> party or own published work/papers, etc)<sup>(3)</sup>
  - In English (In a foreign language IF agreed by graduate School)
    - <100,000 words(excluding bibliography/references/appendix, including footnote)
  - Thesis must be submitted in the adequate electronic format & in accordance with instructions obtainable from the Academic Registrar <sup>(2,4)</sup>

(1) Regulations for a PhD:

[www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/regulations/2015-16/academic-regs/PhD-\(including-MPhil\).pdf](http://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/registry/academic-governance/public/regulations/2015-16/academic-regs/PhD-(including-MPhil).pdf) ; (2) See page 6 of above document; (3) Reproducing third party or own work in a thesis

[www3.imperial.ac.uk/scholarly-communication/spiral-digital-repository/phd-theses/third-party-copyright](http://www3.imperial.ac.uk/scholarly-communication/spiral-digital-repository/phd-theses/third-party-copyright); (4) [www3.imperial.ac.uk/registry/exams/thesisandvivas](http://www3.imperial.ac.uk/registry/exams/thesisandvivas).

# TIMELINE<sup>(1)</sup>



1. Initial thesis submission – Viva copies
  - Nomination of examiners and Examination entry form
  - Thesis declaration form (Registry)
  - Writing-up status form : CRS – completing research status : in college or away from college (no access to facilities or formal supervision)
  - Electronic submission – [www.ethesis.co.uk](http://www.ethesis.co.uk)<sup>(2)</sup> → examiners
- [Submission checklist](#)<sup>(3)</sup>
1. Final thesis submission - Final copies
  - Corrections if needed
  - Spiral Submission , the College Digital Repository<sup>(2)</sup> – open access

<sup>(1)</sup> <http://www3.imperial.ac.uk/registry/exams/thesisandvivas>; <sup>(2)</sup> [https://workspace.imperial.ac.uk/registry/Public/Current%20Students/Submission%20Checklist%20for%20Imperial%20College%20Degrees\\_Dec%202014.pdf](https://workspace.imperial.ac.uk/registry/Public/Current%20Students/Submission%20Checklist%20for%20Imperial%20College%20Degrees_Dec%202014.pdf); <sup>(3)</sup> [https://workspace.imperial.ac.uk/registry/Public/Current%20Students/Submission%20Checklist%20for%20Imperial%20College%20Degrees\\_Dec%202014.pdf](https://workspace.imperial.ac.uk/registry/Public/Current%20Students/Submission%20Checklist%20for%20Imperial%20College%20Degrees_Dec%202014.pdf)

# A GOOD THESIS (1)

## ORIGINAL WORK?

### 1. Your own!

- Own words, ideas and judgments
- Careful of plagiarism : Text and ideas: Quote, references & attribute

### 2. New work =

- New data
- New methods
- New interpretation
- New application
- New questions
- New way of testing knowledge
- New connections

# ORIGINAL WORK?

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  - Own words, ideas and judgments
  - Careful of plagiarism : Text and ideas: Quote, references & attribute
2. New work =
  - New data
  - New methods
  - New interpretation
  - New application
  - New questions
  - New way of testing knowledge
  - New connections



# A GOOD THESIS (2)

- Good discussion of strengths and limitations – methods and results
- Sharp summary of results and importance of thesis contribution
- Has an appreciation of what comes next
- Appreciation of implications of results in wider context
  
- Focuses on the interesting and important information
- Attention to details:
  - Well-illustrated with figures and graphs (Acknowledge permission if needed)
  - Written without grammatical and spelling errors

# EXAMINERS' EXPECTATIONS

- **In short – a coherent, readable and well presented “credible” story**
- Interesting piece that they can learn from – leading to interesting scientific discussion with an expert in the field
- Look for:
  - Adequate knowledge of the field
  - Know the literature in depth and breadth
  - Comprehensive, relevant and up to date literature
  - Well reasoned and well designed studies
  - Clear and logical presentation of key results -Judicious choice of figures and tables
  - Effective arguments and conclusions
  - Well written – Accurate Unambiguous
  - Attention to details – (minimise typos!!!)
  - Coherent – strong rational and story line
  - Convincing
  - Honest – contributions of others
  - Implications & Limits

# EXTERNAL EXAMINER'S CHECKLIST

## Why? So what? Do I believe it?

- ✓ Research aims clear?
- ✓ Literature reviewed/critiqued?
- ✓ Key papers included?
- ✓ Theoretical basis sound?
- ✓ Conjectures consistent with theory?
- ✓ Appropriate methodology?
- ✓ Evidence collected ethically?
- ✓ Sufficient evidence?

- ✓ Convinced of reliability and validity?
- ✓ Findings assessed against literature?
- ✓ Findings make significant contribution to the field? How?
- ✓ Any inconsistencies?
- ✓ Conclusions/take home message?
- ✓ Convinced that the work was carried out by the student?

IS THE EXAMINER AN EXPERT IN YOUR FIELD?

Non experts – can be even more objective & critical

# EXAMINERS DON'T LIKE

- Bad thesis which are painful to read-
  - Not interesting or too much material badly summarised or organised
  - Need to guess, hypothesise or have to synthesise results to extract take home messages
  
- NO-NO:
  - Lack of objectivity
  - Small or badly described problems
  - Poorly reasoned & pre-conceived idea not based on data
  - Badly-designed & executed experiments
  - Poorly present methods – not reproducible
  - Insufficient analysis quantitative analysis – only describe and does not explain results
  - Repeats or confirms well-established facts
  - Has poor presentation and choice of graphs and illustrations
  - Overselling and under selling results
  - Errors and Badly reference own or third party work
  - Conclusions not aligned with results
  - Too many grammatical and typing errors & lots of repetitions
  - Poor use of English & lack of precisions
  - Sloppy presentation
  - Arrogance and failing to acknowledge contribution of others

# PHD THESIS

- Before starting - Find your bearings
  - Revise relevant information from College & on the viva process
  - Reflect on what makes a good thesis : expected content and form
  - Read examples of theses from your Department
  - Read the old and recent literature
- Make a plan – Content and timeline
  - (Update) Thesis content - feedback from supervisor
  - Make a writing plan /list of chapters & main sections
  - Scheduling (supervisor feedback and proof reading)
  - Make a checklist & timeline : content & admin issues
  - Budget sufficient time

# TYPICAL THESIS CONTENT

- Title page
- Declarations (originality, copyright, thesis declaration form)
- Table of content
- List of figures and tables
- Acronyms
- **Abstract**
- **Introduction**
- **Literature review**
- **Aims and Objectives**
- **Methods**
- **2 to 4 substantial results chapters (include discussion)**
- **General discussion**
- **Conclusion - implications and future directions**

# SPECIFIC CONTENT

- Introduction (WHY?)
  - Literature review
  - Context
  - Theory
  - Gaps
- Objectives
- Methods (WHAT and HOW? In sufficient details)
- Results (WHAT did you find?)
  - Careful selection of figures & tables
  - Add texture !
  - Style according to your discipline
- Discussion (WHAT does it means?)
  - Strengths & limitations
- Final chapter
  - Conclusions and suggestions for further work
- References
- Appendices (additional details, published papers & permission for copyright)

# SOME DISCIPLINE

- Good writing is challenging!
- Establish an undistracted writing routine – that works for you
- Start with relatively detailed structure - Skeleton
  - Table of of content
    - Main sections
- Flesh it out
  - Start with the most comfortable chapter - easiest (previously published paper, clearest results)
  - Small pieces
  - Set realistic deadlines/deliverable





# SOME DISCIPLINE

- List and tick
- Set realistic goals and reward yourself for even a little progress



- Work in bursts; take short breaks
- Don't stall on details, walk away (ideas/logical flow first, style after)
- Seek help from the experts: supervisor, library, faculty training programs
- Rest chapters
- Consistency across chapters

# SELL YOUR IDEA!

Keeping your ideas short, simple and clear:

- Describe and justify worthwhile, single, overall objectives of your research
- Articulate specific aims that are clearly related to one another and logically fit under the umbrella of the overall objectives
- Present gaps in our knowledge & implications
- Plant the seed for achieving each specific aim by presenting the questions to be asked which will fill the gaps

**→ Rational and objective of your research in a nutshell**

Adapted from Geva Greenfield's lecture

# WRITING STYLE

- Make the presentation clear and simple but precise & to the point; avoid verbose
- Think of the reader/reviewer – “lazy”
- Give all the information in a user-friendly but unambiguous way:
  - Assume total ignorance (or research subject but not dumb!) on the part of the reviewer
  - Provide all of the required conceptual background – basic and in simple terms
  - No abbreviations or acronyms without definition
  - Use diagrams to illustrate concepts and models or conceptual framework – well labeled and explained
  - Make sure figures and tables are introduced and referred to - or omit them
  - Use formatting for emphasis -> not too much
  - Use key words - don't worry about repetition of terms

# LINK YOUR WORK TO YOUR FIELD

- Describe existing research and how your work builds on it:
  - Are you contesting a view?
  - Are you making existing theories/evidence more robust with additional perspectives?
  - Are you filling a gap?
- How are you adding value to your field?
- Clearly identify own contribution : “I” rather than “We”

# DON'T FORGET (1)

- Take detailed notes during your PhD
- Develop a filing system
- **BACK UP!**
- Copy your research log
- Check University regulations & deadlines
- Set clear & realistic goals for each week/day/hour
- Use your outline & be organized
- Set yourself harder deadlines and milestones
- Repetitions, stagnation and long hours is normal
  
- Choose examiners carefully – defending a well written thesis should be challenging but fun too!

# DON'T FORGET (2)

- You need to practice writing – courses, papers etc
- You need to read PhD theses (not least so you know what being the audience for a thesis is like)
- It takes longer than you think – plan enough time
- **It will likely take many iterations to make it very good and select most appropriate results, review / reshape the essential logical skeleton or argument of your own thesis or research.**
  - **Stop – forget – start again**
- **Final details and proof readings essential – help from colleagues and non experts (friends)**
- There are moments when you will not enjoy it as much as you thought you would – it's normal
- **Stay positive:** If your are stock writing up, it is because you have nearly finished your PhD!

# EXPECTATIONS FROM SUPERVISORS

- Be pro-active
- Take the lead of your PhD & thesis
- Style and writing reflect quality of the work
- Allow & agree on sufficient timeframe for feedback & chapter revisions
  - E.g. some supervisors cannot judge the work unless it is presented completely → present a neat, complete version of each chapter
  - Some supervisors stop reading if too many mistakes → proof-read thoroughly and spell checked
  - Don't expect a chapter to be read many times
- Contingency plans for unexpected delays

**→ Your supervisor wants you to have a good thesis but it is your responsibility to deliver**

# REVISING A DRAFT (STYLE)

## **Create your own checklist:**

- Does the content match the title ?
- Are important points emphasized enough ?
- Is the content within each section appropriate ?
- Is there a logical sequence ?
- Are information sources acknowledged ?
- Do the conclusions relate to the objectives & results ?
- Have you followed the conventions and regulations ?
- **Is the meaning of each sentence clear - or open to interpretation ?**
- **Can long sentences be broken down or written more efficiently ?**
- **Is the language, terminology, and presentation consistent across chapters**
- **Are all inserts well explained, readable, labeled and used?**
- **Ask a friend who knows nothing about the subject to proof read**



# REVISING YOUR OWN DRAFT (CONTENT)

- **Self criticism– be you own examiner!**
  - Why is it important? What critical information would be missing without this work?
  - Why did you use this method/approach
    - Be clear on its advantages and limitations
  - Is your interpretation the only possible explanation?
    - How strong is the evidence from your results? Does it confirm your hypothesis
    - Support from the literature
    - Confirmation from further work
  - Anticipate the debate!
    - Can the work have been done in another way?
    - If you were the examiners – what would you pick on?
    - What other results might you want to see?
  - Ask a colleague to give feedback; Think about the Viva

# VIVA: TYPICAL QUESTIONS/TOPICS

- Can you summarise your thesis in 5 minutes?
- What are your main findings?
- What is original about your research?
- Describe your methodology and why you decided to use this – couldn't you have done another way?
- Can you highlight the major contribution that your thesis makes?
- How do your findings relate to the literature?
- Why are your results different than so and so?
- Who are the most exciting research questions in your field?
- What has been published on the subject in the last 6 months?
- But also – anything from your undergraduate or previous studies (evidence of fundamental understanding of the area)
- Have you seen the latest paper on ... last week?
- Can you explain what you mean here or how you did this?
- What recommendation would you make to policy makers?

# WHEN IS IT GOOD ENOUGH TO SUBMIT?

- The decision to submit a thesis rests with the candidate alone.
- Opinion of supervisor(s) matter !
- [Checklist](#)

# SUMMARY - TIPS

- **The better the thesis the easier the Viva**
- Commitment
- Organization and planning
- Write continuously
- Less is more:
  - Say more with less → difficult and needs practice
- Do (very) good enough
- Realistic timeline
- **Nothing is set in stone**
- **Develop skills to double check your work**
- **Edit work of others**
- **Write and sleep on it**
- **PhD is a marathon – some miles are easier than others**

# SUMMARY - PITFALLS

- Poor organization & Time management & Starting too late
  - Procrastination & Over-perfection
  - **Not an integrated body of work; disjoint chapters, too descriptive and not analytical or experimental enough**
  - **No compelling case made for the theoretical or practical utility of anticipated findings**
  - **Saying too little on too much – too much on too little – repetition**
  - Lost in complexity and abstraction
  - Bad choice of figures
  - Too many typos
  - Cumbersome sentences
  - **Writing fatigue: general discussion –not summary and highlighting its importance**
- **Look matters – Look is not enough**

# USEFUL LINKS AND WEBSITES

- Thesis submission and viva
  - <http://www3.imperial.ac.uk/registry/exams/thesisandvivas>
- Passing your viva & examiner perspective
  - <http://www3.imperial.ac.uk/graduateschool/currentstudents/onlineresources/passingyourviva>
- Preparing your thesis for submission to the Spiral Digital Repository (permission to reproduce own or third party work, plagiarism awareness)
  - <http://www3.imperial.ac.uk/scholarly-communication/spiral-digital-repository/phd-theses>
- Compulsory course
  - <http://www3.imperial.ac.uk/graduateschool/plagiarismawarenesscourse>
  - <http://www3.imperial.ac.uk/scholarly-communication/spiral-digital-repository/phd-theses>
- Completing Research Status - Writing-Up
  - <http://www3.imperial.ac.uk/registry/researchdegrees/writingup>
  - [https://workspace.imperial.ac.uk/registry/public/Exams/ethesis\\_FAQ.pdf](https://workspace.imperial.ac.uk/registry/public/Exams/ethesis_FAQ.pdf)
- [Academic ladder](#)
- <http://www.timeshighereducation.co.uk/news/how-not-to-write-a-phd-thesis/410208.article>

GOOD WRITING