What is the dissertation?
- a document of about 10,000 words
- describing your project
- in a carefully prescribed format
- worth a quarter of your final mark
- Due 12 noon on Friday 15 May 2015
- Vivas are on Monday 15 June 2015

Length
- Maximum of 12,000 words
  - Including main text, tables, footnotes
  - Excluding appendices, bibliography, photographs, diagrams
- Aim for 10,000 words

Advice for terse writers
- It would be very hard to describe a Part II project properly in under 7,000 words
- So write your 7,000 words as best as you can
- Then see when you can improve your core by adding more words
  - Longer explanation of the key algorithms?
  - More results?
  - More detailed analysis of the results?

Advice for verbose writers
- The best project write-ups fit nicely within the 12,000 word limit, rather than feeling squashed
- What are the key points you need to cover to get the marks? – cover these
- What are the fascinating but largely irrelevant side issues? – drop these
- It is especially easy to write too much in the Introduction and Preparation chapters
- You do not have to explain every function you wrote, every data structure you use, every book you read, and every interesting idea for extensions that you had
- If all else fails, write too much and then ruthlessly cut it down, preferably with the help from your Supervisor (and/or Director of Studies)

Advice for all
- What are the key points?
  - make sure you cover these
  - some ideas for key points: what did you set out to do? what did you actually do? how did you do it? what were the results? how good were the results?
- Always remember who your readers are: three examiners!

It’s not a diary
- It is a report not a diary
- don’t write it in the order you did it
- write it in the order that will make most sense to the reader

Why?
- You will write many reports, this is good practice
- You will be judged on the dissertation, not directly on your program
- You need to present your work as well as possible
- It is worth a good proportion of your final mark

When
- Finish programming, testing and results gathering by end of Lent Term at latest
- Finish complete draft well before Easter Term
- Give to supervisor and Director of Studies to read
- Correct and submit 2 weeks before deadline
  - Deadline: 12 noon, Friday 15 May 2015
Penalty

- If you submit past the deadline, you will be docked 25% of the mark
- with a further 5% of your mark docked for each subsequent day late
- This isn’t an idle threat – we do it
- even if you are just one minute late

Who are you writing for?

- Three Computer Science lecturers
  - You may assume that they are intelligent
  - They know a lot of computer science
    - so they are not ignorant
  - They do not know the detailed area of your project
    - so you need to tell them about it
  - They prefer good writing
  - They will read your dissertation fairly quickly

They read quickly?

- Each examiner has to read 50 Part II dissertations in 2 weeks
- I can read 15,000 words/hour
  - if it’s interesting!
- So expect the examiner to spend between ¾ hour & 1½ hours on your dissertation

Important corollaries of this

- Be clear, be concise, tell them what you want them to know, do not expect them to realise how clever you are by osmosis
- Say things up front, don’t hide interesting stuff, you are not a mystery writer or a magician
- Do not expect them to plough through pages of boring gory detail
- Do not use code extracts when prose will do a better job

Provide signposts

- Your reader needs to know why they should bother to read each bit of the dissertation
- You should tell the reader
  - Where you are going
  - Why you are going there
  - How you are going to get there

Say everything three times

- Give an overview of what you are going to say
- Say it
- Summarise what you’ve said

This applies

- To whole dissertation
  - Ch. 1, Ch. 2–4, Ch. 5
- To each chapter
  - introduction, content, summary
- To each section in a chapter

Who should proof read it?

- Supervisor (obviously)
- Director of Studies (if he/she has time)
- Friends (provided they aren’t also overloaded with work)
16 **Allow sufficient time**
- Your supervisor and Director of Studies are busy people so:
  - Allow them enough time to read and comment (say 2 weeks) so they can fit it around their other commitments
  - Use them wisely – do not give them a draft that you haven’t checked yourself
  - Do not assume they’ll read more than one draft
  - NEVER give them a second draft if you haven’t incorporated their corrections from the first draft!

17 **Tools**
- Microsoft Word
- \LaTeX
- your own favourite word processor
- whichever tool you use:
  - set up a template of the whole dissertation straight away
  - ensure that you can include figures, photos, equations, etc (whatever you need)
  - ensure that you can print it
  - find somewhere to get it bound

18 **Microsoft Word**
- learn to use styles (Format menu)
- they will help you keep your typesetting consistent (e.g. all second level headings in the same typestyle)
- make it easy to get section numbers automatically and correctly
- difficult to typeset large amounts of mathematics efficiently
- including figures neatly is often a challenge
- easy to include figures in a clunky way

19 **\LaTeX**
- similar to a programming language
- gets all the typesetting right for you automatically
- easy to handle equations & tables
- including figures works well, once you know how to get it to work
- Martin Richards has provided a collection of files that constitute the basis of a \LaTeX dissertation: www.cl.cam.ac.uk/~mr/demodiss.tar

20 **Structure – five chapters**
1. Introduction: 2–3 pages
2. Preparation
3. Implementation
4. Evaluation
5. Conclusion: 1–2 pages
- see the pink book for details of what should go into each of the five chapters
  - www.cl.cam.ac.uk/teaching/projects/pinkbook.pdf

21 **Mark allocation**
- the pink book tells you how marks are allocated and what the examiners want to see
  - Introduction & Preparation 26%
  - Implementation 40%
  - Evaluation & Conclusion 20%
  - Presentation 14%
22 **Introduction**

- Make it clear in the first paragraph what your project is about & how well you’ve done it.
  - e.g. "My project concerns the creation of a new operating system. My OS is based on quantum uncertainty. I have successfully implemented the heart of the new OS, which I have demonstrated running a range of key operations. This implementation fulfills the requirements of my core project proposal and one proposed extension: recovering deleted files through a time warp mechanism."

23 **Preparation**

- "work done before code was written"
- show evidence of planning
- show evidence of good software practice
- explain any background
- the nature of this chapter will vary greatly between dissertations

24 **Implementation**

- What level of detail?
  - Too little detail
    - "I wrote a class which implemented public key cryptography using the new BWR algorithm."
    - you need to tell the reader something about how you implemented this clever algorithm
  - Too much detail
    - "My BWR cryptography class contains six methods. The first method is called X, it has four parameters called A, B, C and D and returns an E. Parameter A is of type F, it indicates to method X exactly how many..."
    - but not so much detail that they lose the will to live

25 **Evaluation**

- Many projects fall down on evaluation
- You may have the most fantastic implementation ever, but you still need to evaluate it
- Allow 2 weeks for evaluation:
  - to get results
  - to analyse results
  - to get screen shots, output logs, photos, if appropriate

26 **Conclusion**

- Make it clear in the first paragraph what your project was about, and how well you’ve done it.
- Also say what you’d do differently if you did it again

27 **Presentation: 14% of the marks**

- primarily for being literate and tidy
- no need to spend hours on advanced graphic design or page layout
- but you do need to ensure that it is spell-checked and that grammar is reasonable
- informal hints can be found at: www.cl.cam.ac.uk/~pr10/teaching/dissertation.html

28 **Final words**

- read the pink book
  - it tells you what you need to write
- prepare a complete template before starting to write
- ensure that you know how you’ll get it printed & bound
- write clearly at an appropriate level of detail
- aim to submit 2–3 weeks early