

# Informatics Research Proposal

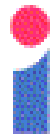


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(slides by Alan Bundy)

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# What is it?

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- **Proposal of a research project.**
- **Delivered by project supervisor.**
- **Full proposal six pages.**
  - cf one page outline on projects website.

# Relation to Summer Project

- **Proposal is for Summer project.**
- **Change of topic & supervisor possible up to 19th February.**

# Why do it?

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- **Learn skills of research planning.**
- **Confirm choice of research area.**
- **Scope out your Summer project.**
- **Compulsory course in your MSc degree.**

# Skills to be Developed

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- **Project Design.**
- **Motivating Research.**
- **Self-Assessment.**
- **Succinct Presentation.**
- **Managing your Time.**

# Transferrable Skills Courses

- **Project Planning**  
2-3:30pm, Wed 03 Feb
- **Effective Presentations**  
2-3:30pm, Wed 17 Feb
- **Proposal Writing**  
2-3:30pm, Wed 03 Mar

**Registration details on IRP website.**

# What to do.

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- **Establish aims and objectives of project.**
- **Establish hypothesis and evaluation.**
- **Break project into work packages,**
  - with durations, dependencies and deliverables.
- **Write full six page report by 25th March.**

# Structure of Full Proposal

- **Motivation: aims & objectives, hypothesis, timeliness, feasibility, significance, novelty, beneficiaries.**
- **Background material (use IRR, where relevant).**
- **Methods and techniques to be used.**
- **Evaluation: methodology for establishing hypothesis.**
- **Outputs: program? experimental results? theory? data?**
- **Research plan: work-packages with durations, deliverables & dependencies (via diagram?).**
  - **Risks and backup.**

# How to get started

- Is there already a project proposal?
- How would you change this in the light of your literature survey?
- Do you need an exploratory study to identify a hypothesis?
- What hypothesis/claim are you investigating?
- What evidence is needed to establish this hypothesis?

# Typical Claims in Informatics

**X is better than Y on task Z along some dimension W.**

- **What kind of things are X and Y?**
  - **system, technique, parameter?**
- **What is task Z?**
  - **Speech recognition, information extraction**
- **What is the dimension W?**
  - **behaviour, coverage, efficiency, usability, dependability, maintainability?**

# How can claims be established?

- **Theoretical evidence: proof of some property or relationship:**
  - correctness, completeness, complexity, etc.
- **Experimental evidence:**
  - **Run computer program and analyse:**
    - run times, success rates (e.g., comparison of computer output with `gold-standard' output), user's reactions, etc;
    - compare two or more programs.
  - **Test and compare human performance:**
    - with program, on different program variants, with other humans, etc.

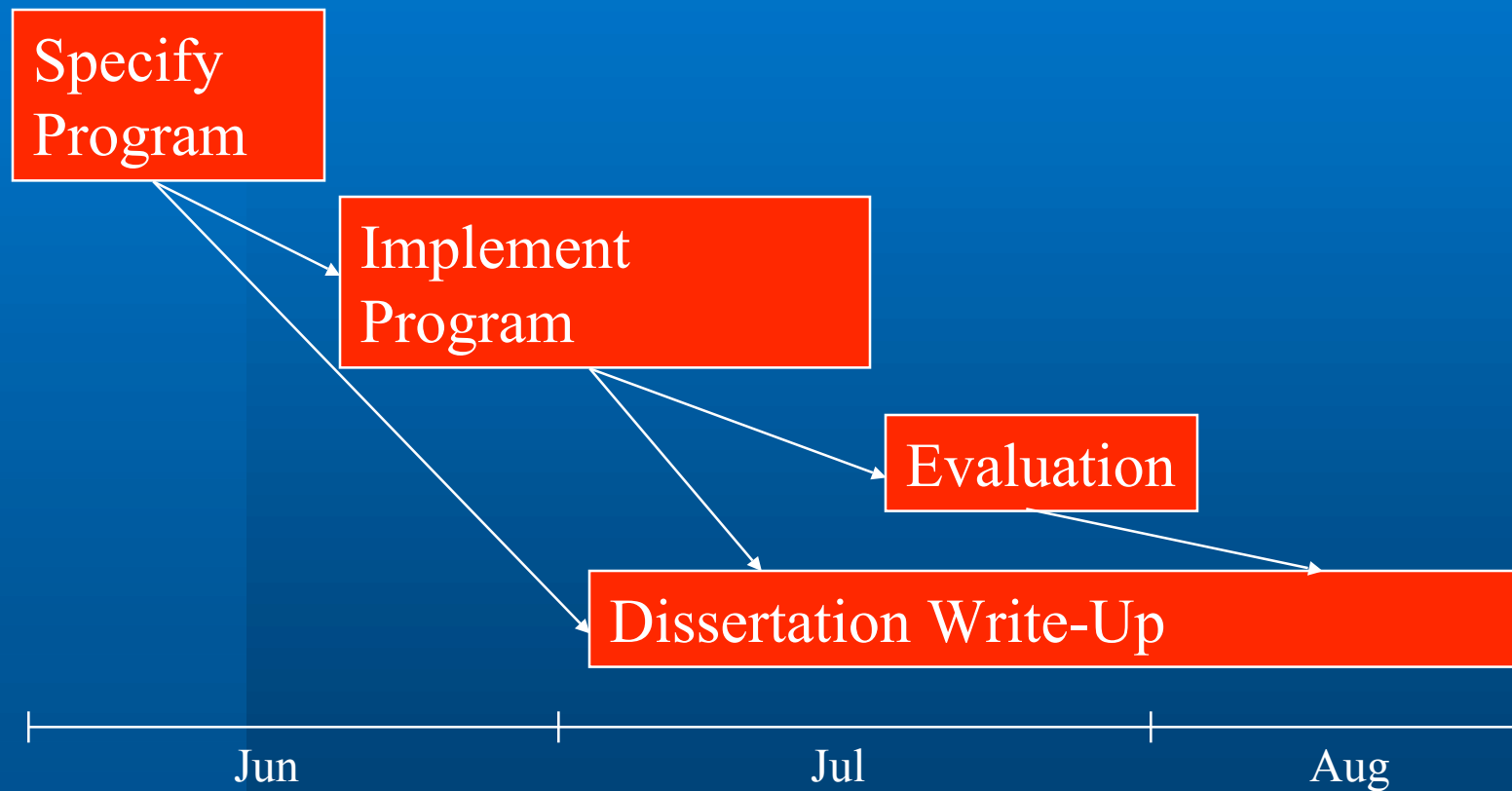
# Think early about evaluation

- **Key part of project,**
  - evidence to support hypothesis.
- **Too risky to leave until late in project,**
  - evaluation required may not be feasible.
- **Interacts with hypothesis formation,**
  - and so, determines nature of project.
- **Write note outlining evaluation plan,**
  - and discuss with your supervisor.

# Planning your project

- **Try to break the overall project into work-packages.**
- **How do they depend on each other?**
  - In which order should you tackle them?
  - In series or in parallel?
  - Which are essential and which optional?
- **How long will each of them take?**
  - Build in some slippage time.
  - Do these estimates fit the time available?
  - If not, trim the project to fit.
- **What is the outcome of each package?**

# Diagrammatic WorkPlan



# Assessment

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- **Your report will be marked by your supervisor.**
- **Assessment will be based on:**
  - **How well project is motivated.**
  - **Quality of research plan.**
  - **Demonstrated understanding of area.**
  - **Clarity of expression and presentation.**

# Basic criteria (need these to pass)

**Clear explanation and justification of each of the following:**

- **Project aims and hypothesis.**
- **Deliverables of project.**
- **Research plan.**
- **Plans for evaluation of hypothesis.**
- **Relation to previous work.**
- **Timetable with dependencies.**

# Additional criteria

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**Convincing arguments about each of the following:**

- **Timeliness and significance of research.**
- **Potential commercial or academic impact.**
- **Backup plan if original plan fails.**

# Marking guidelines

- **Pass: adequate on basic criteria.**
- **Fail: inadequate on two or more basic criteria.**

**If you fail this, then whether you pass the MSc overall will depend on decisions taken at the BoE meeting.**

# Common proposal shortcomings

- Hypothesis is unclear, woolly or ill-formed.
- Project insufficiently motivated.
- Not clear how your methods test the hypothesis.
- Insufficient technical detail to assess.
- Unaware of related research.
- Badly presented or incomprehensible.

# Pacing yourself

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- **Work out timetable for writing.**
- **Leave plenty of time for feedback and correction.**
- **Write at a steady pace.**
- **Meet with your supervisor regularly.**

# Conclusion

- **Identify hypothesis and how to evaluate it.**
- **Plan research programme.**
  - Break project into work-packages.
  - Gauge duration, deliverables and dependencies.
- **Motivate: significance, feasibility, novelty.**
- **Pace yourself.**
  - Leave time for feedback and correction.
  - Self-assessment against marking criteria.