

MIS40750

Analytics Research & Implementation

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Last time

- Practicalities
- Guerilla Analytics
- Reproducibility and organisation (*make*)
- Project management for analytics projects
- Project scoping
- Managing your supervisor
- Getting help
- Sources of projects
- Proposing own project
- Bidding

Lecture 8: Practicum/Dissertation

- Proposing and bidding
- Deliverables
- Presentations
- Document structure
- Advice (do's and don't's)

Proposing and bidding

Project proposals

- See list of projects proposed by faculty and employers in Blackboard

Proposing your own project

- **1-3 pages**, due end February
- A proposal must convince us the project is **viable**:
 - A real problem exists
 - Academic background has been considered
 - Necessary data is available
 - The project will be “large” enough
 - But not too large (scope-limited)
- Compare your proposal to those from employers in Blackboard
- Yours should be *better*
- **Talk to relevant faculty** before submission

Bidding

- End February you submit an ordered list representing your **preference**
- In case of conflict, it is resolved by **GPA** to date and Lit Review grade (taking the **mean** of a 2-person team)
- Shortly after, the allocation of **projects** and **supervisors** is announced
- **Get in touch** with supervisor and employer if applicable quickly so you can do some meaningful work during fieldwork break

Deliverables

Deliverables

Analytics Research & Implementation:

- Programming assignment (Oct)
- Programming exam (Oct)
- Literature review (Jan)
- **Project proposal presentation (April 7/10)**

Deliverables

Dissertation:

- Skeleton dissertation (April 28) **10%**
- Presentation (August 25/28) **10%**
- Document, code and pdf poster (Sept 1) **80%**

Practicum:

- Presentation (August 25/28) **20%**
- Document, code and pdf poster (Sept 1) **80%**

Deliverables: code and poster

- **Code** should be submitted if appropriate:
please agree with your supervisor
- (Allows your work to be developed further)
- **Final presentation** should include **poster**
as final slide
- Little text, **large font** size
- Mostly **images**/graphics
- Put UCD logo, supervisor name, your name,
and “MSc Business Analytics”

Presentations

Proposal presentations

- 1-person team: 10 mins + questions
- 2-person team: 15 mins + questions
- Business dress
- Audience:
 - Board of assessors drawn from faculty
 - Fellow students
 - Companies/organisations
- Material covered in the MSc can be assumed to be known to the audience

Proposal presentation requirements

- Project title;
- the business problem and/or project motivation;
- the background/previous work;
- outline proposed approach/methods;
- Dissertation: academic *contribution*;
- Practicum: academic *justification*;
- business/practical contribution;
- requirements including data;
- how you will measure success;
- a timeline.

Proposal presentation grading criteria

- Addressing all requirements
- Quality of delivery
- Quality of slides
- Professionalism including being on time, adherence to time limit, business dress
- Ability to answer questions
- Distribution of material and questions among 2-member team

Final presentation requirements

- Same requirements as for proposal presentation, but now in past tense: eg “how you performed against your measure of success”
- Plus results/analysis/conclusions
- Plus “what we learned”

Final presentation grading criteria

- Same as for Proposal presentation

Giving presentations

- Plan
- Practice (record yourself on video?)
- Time yourself
- Keep it simple
- Business dress
- Smile, act confident, speak clearly & slowly
- **Look** the audience in the eye
- Try not to **read from notes**
- Relevant **pictures** are better than words
- Use a **large font size**

Giving presentations

Great advice:

- <http://research.microsoft.com/en-us/um/people/simonpj/papers/giving-a-talk/giving-a-talk.htm>
- <http://pne.people.si.umich.edu/PDF/howtotalk.pdf>

Skeleton Dissertation

- (No skeleton is required for Practicum)
- Use the **template** provided: the skeleton will become your Dissertation
- Should have **significant amounts of material** in Introduction and Methodology chapters
- Fairly **complete Literature Review** chapter
- Should take account of **faculty comments** at proposal presentation

Skeleton Dissertation grading criteria

- Completeness (near-complete lit review, substantial content in Introduction and Methodology)
- Structure
- Quality of writing
- Quality/comprehensiveness of literature review:
 - Finding appropriate, up-to-date papers
 - No major omissions
 - Analysis/synthesis
 - Statement of a gap

Dissertation or Practicum?

- One main issue is additional 10-credit taught module in summer
- Dissertation is aimed at researchers
- Academic novelty is required (how much?)
- Practicum is aimed at practitioners and decision makers
- Academic justification is still required

Dissertation or Practicum?

In a few cases, particular project proposals from faculty/employers are already designated as Practicum-only or Dissertation-only. In other cases it is up to the students to choose (subject to faculty approval).

Dissertation or Practicum?

If Proposal Presentation (April) does not convince faculty that a proposed Dissertation is suitable as a Dissertation, it may be converted to Practicum.

Faculty may also suggest a change in other direction.

Document structure

The document

- In both Dissertation and Practicum, you are trying to convince **skeptical** readers that your claims are **true and important**
- Your work won't consist purely of formal logic, but you should aim to **support** all claims (some through citation, others through argument, others through data)
- Think about logical **fallacies**
- What convinces you, in an argument? What convinces you even when you don't want to be convinced?

The document

- See Blackboard for documents prescribing document structure
- Templates are in Blackboard also

The document: Methodology

- Enough detail for **reproducibility**
- If methodology is **novel**, justify it
- Otherwise, cite a previous related paper with **similar** methodology

The document: Results

- Lots of charts/tables as appropriate
- Try to give pure description of results first, and keep commentary/interpretation separate
- If you find some results that are “bad news” for your method, you **must** include them also
- Statistical tests if appropriate

The document: Analysis

- More **discursive** than the Results chapter
- **Refer** to previous chapters: lit review, research questions, results
- Everything intertwines to become an argument
- Are your results **consistent** with each other, with expectations?
- Can you **generalise** without speculating?
- Probably the **most difficult chapter** to write

The document: Conclusions

- A summary is ok to include, but it is not a conclusion
- What is the **answer to the research question?**
- Reflection on **importance** of the answer
- Self-assessment including **limitations**
- Statement of **contributions** (including contribution to practice or academic novelty)
- Scope limitation/statement of **future work**
- You can **speculate**, a little

Tech-report style submission

- A short ~15 page research paper
- Ready for submission to a journal or conference
- Has its own self-contained structure
- Sandwiched inside normal structure
- Can omit long chapters on Methodology, Results, Analysis

Advice

Do's and don't's (proj mgmt)

- Do **plan** the tasks and **timelines**
- Do as much as you can **early on** - reading, meetings, prototypes, baselines, data gathering, visualisation...
- Do use the **skeleton** to drive early work
- Don't leave all writing to the end
- Do **plan** out sections, sub-sections within each chapter
- Don't hide **obstacles/mishaps** from your supervisor
- Do keep **logs** and **backups**

Do's and don't's (with employers)

- Do be **professional when on-site** with an employer
- Don't allow yourself to become an **intern**
- Do agree **ground rules**, eg timetable & data access, with employer
- Don't mislead them about the outcome: at best it is a proof of concept, **not a finished product**
- Do **invite** them to your presentations
- Do check for confidential details in your outputs

Do's and don't's (writing)

- **Don't pad** or waffle
- Do plan, write, and **edit**
- Don't forget to give all appropriate acknowledgements and **cite all sources** (figures, quotes, paraphrases, results, ideas)
- Do **imitate the style** of the best papers you've read
- Do ask yourself: how could the reader **misinterpret** my sentence?

Thoughts

- In academic papers, the “formula” (intro, lit review, methods, etc) may not be the best, but familiarity helps orient the reader
- Just as in art, a genius can break any rule

Thoughts

- How much novelty is required?
- What degree of difficulty?
- Is it better to succeed on an unambitious project or fail on an ambitious one?

Thoughts

- A research project is a good line on a cv and a good talking-point in job interviews
- It is **more than that**:
- I see research as a privilege
- A period of time when you do only self-driven research: a rare opportunity!