

Course discussion

Social and Technological Networks

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Today

- Course and Project: follow up discussion
- Lectures
- What to study for exam
- What to expect in exam

Projects

- The intention:
- Learn to initiate and do own projects
- Imagine and try creative ideas
 - Failure is fine.
- Build the idea into something workable
 - Through trials and errors

- What did you think?

Projects

- The intention:
- Learn to initiate and do own projects
- Find creative ideas
- Try to do the project, and realise there are roadblocks, or the idea does not work as intended
- Find more ideas to overcome problems, and repeat
 - Redo part of the project
 - Sometimes large parts, sometimes the entire thing..
- Plan time and work accordingly. Then re-plan, and repeat..

Projects

- How work happens in real world – everything is a project!
- Usually you are not given complete instructions
 - Finding out what to do is part of the job
 - Works better if you do something original instead of the obvious

Projects and original efforts

- Companies prefer someone who takes initiative to do something new instead of just follow instructions
- More people are working on startups, own business, consultancy etc.
 - It is useful to always think about what you can do different

- If you enjoyed trying your ideas, consider doing a PhD
 - Opportunity and time to learn cutting edge stuff
 - Try your own ideas
 - Develop longer term plans etc
- Many companies (Google, MS) prefer PhD
- A good place to start startups or your own things
- Applications usually in december/january
- See my web page for the application process at Edinburgh (apply to other places too!)

- But do consider practical issues too
- And more importantly what you prefer
- If you are unsure or have questions, talk to someone!

Your Feedback

- Mixed response to 20pt course.
- Several of you would have liked tutorials
 - Will take this into account
 - (Time is the constraining factor)
- Mixed response to mathematical models vs computational algorithms and data mining.
- More real applications

- One more exercise set to be uploaded later this week
- Kleinberg and Easley 2010 has questions after each chapter.

Lectures

- The intention
- Give you an overview of topics in Network Science
- Some idea of the types of analysis and techniques used in the field
- How intuitive ideas can be made rigorous and analysed
- To give you enough idea so that now if faced with a networks problem, you know where to look or what may be relevant

Lectures

- Practical issues
- The area is large
- Some techniques are quite involved and we did not have a lot of time
- Advanced material are not good for exams
- We needed some relatively simple material for exams
- The balance between depth and breadth is difficult

Slides and reading

- Please use the latest online version (these may get slight updates/corrections)
- Let me know any errors/omissions you notice
- Exam material : slides and reading lists (not additional reading)
- One more exercise set will be uploaded

Exam

- What to expect:
- Similar to last year's exam, but possibly slightly more mathematical
 - Less involved than exercises
- You are not expected to reproduce entire proofs from class
 - But expected to understand them
 - To answer questions about them
 - Or use some similar techniques in answering different questions

Visiting students

- Exam in december
- Things uploaded after today not in exam
- Expect exam similar to last year.

Some typical questions:

- Define property/measure X .
 - For a given graph in Figure, compute X
 - eg. CC/betweenness of each node, of the graph, diameter of the graph, matrix A or L etc..
- For a description of a graph, show that it must have the following property
 - Examples in exercises

- Given a problem such as ...
 - How would you solve this? What algorithm will you use? Justify your answer.
 - How would you construct a network?
- What are the advantages/disadvantages of using X in problem setup Y?