Course project overview

Course project is the *main* part of your coursework!

Project topic should be related to network science and should go beyond this course. Project can also borrow from other courses.

Students will be encouraged to submit a paper describing their course project to the preprint server arXiv.org or make their work publicly available. All students will have to present the project in front of their peers. Students should work in groups of three, while other group sizes will be allowed only in special cases.

Project types

- analytical derivation of rigorous theoretical results
- empirical evaluation of methods, models or networks
- design of novel or improved methods, models or algorithms
- scalable implementation of popular methods or algorithms
- contribution to Slovenian network science community
- relevant contribution to courses INA, MLG or ANTS

Examples of projects

- Marc, T., & Šubelj, L. (2018). Convexity in complex networks. *Network Science*, 6(2), 176–203.
- Naglić, L., & Šubelj, L. (2019). War pact model of shrinking networks. *PLoS ONE*, 14(10), e0223480.
- Zavrtanik, V., & Šubelj, L. (2018). Community detection in Slovene public spending. *Uporabna Informatika*, 26(3), 107–117.
- Stavanja, J., Klemen, M., & Šubelj, L. (2020). Predicting kills in Game of Thrones using network analysis. *Uporabna Informatika*, 28(2), 55–65.
- Svete, A., Hostnik, J., & Šubelj, L. (2020). It is not just about the melody: How Europe votes for its favorite songs. *Uporabna Informatika*, 28(2), 66–84.
- Poštuvan, T., Salkić, S., & Šubelj, L. (2021). Learning-based link prediction analysis for Facebook100 network. *Uporabna Informatika*, 1–14.

Project proposal

Project proposal should consist of **1-2 pages** in PNAS format (use this template). It should be submitted through Gradescope (entry code NM8ZRM) and is due on **May 14th** at 9:00pm, while late days expire on

May 17th at 12:00pm.

Proposal should include title and abstract, problem definition, motivation and background, overview of relevant literature, project proposal including data, methods, results and contributions, and description of preliminary work.

Project paper

Project paper should consist of $\approx$ **4 pages** in PNAS format (use this template). It should be submitted through Gradescope (entry code NM8ZRM) and is due on **June 18th** at 9:00pm, while late days expire on **June 21st** at 12:00pm.

Project presentation

Details on project presentation will be announced in due time.

Project steps

1. read enough scientific papers
2. decide on your project domain
3. find relevant data and check it
4. decide on your project problem
5. clearly state your project hypotheses
6. select appropriate tools and techniques
7. conduct preliminary analysis of hypotheses
8. find related papers and read them

- analyze your hypotheses
- refine your hypotheses
- iterate until deadline

Project tips

- know your project domain
- assume data you can actually get
- make hypotheses as simple as possible
- use simplest methods and techniques possible
- make results practically useful and valuable
- make project completion feasible
- work and write simultaneously
- start working on project early