

ST5225 Statistical Analysis of Networks

AY2024/25, Sem 1, Week 0
Preliminaries

Adrian Roellin

Structure of the course

- The course consists of twelve 3-hour long sessions
- Detailed syllabus is provided on Canvas.
- Week 13 will be a review session.
- Each session consists of three parts:
 - During the **lecture**, I explain the relevant concepts of the week at a fairly high level
 - During the **deep dive**, I go through more details and examples.
 - During **hands-on activities**, you get to work on actual data yourself

-
- For the deep dive and hands-on activities, I will use Jupyter notebooks, and you need to bring your charged laptop to follow.
 - There will be 3 graded assignments, each counting 20%
 - The final exam counts 40%

Hands-on activities and coding

- This course will use mostly Python and the NetworkX package.
- Set up a GitHub.com account using your NUS email address.
- If you've already used your NUS account for a personal account, you can convert it into a student account: <https://github.com/edu/students>.

Installing Anaconda

- Go to <https://www.anaconda.com/products/distribution>.
- Click on “Download” and choose the installer for your operating system (Windows, macOS, or Linux).
- Run the installer and follow the instructions to complete the installation.

Installing Visual Studio Code

- Go to <https://code.visualstudio.com/>.
- Click on “Download for [Your OS]” and follow the installation instructions.

Setting Up VS Code Extensions

- Open VS Code.
- Go to the Extensions view by clicking on the Extensions icon in the Activity Bar on the side of the window.
- Search for and install the following extensions:
 - “Python” by Microsoft
 - “Jupyter” by Microsoft
 - “GitHub Copilot” by GitHub.com (you will need to sign in with your GitHub account to use Copilot).

Setting Up a Conda Environment

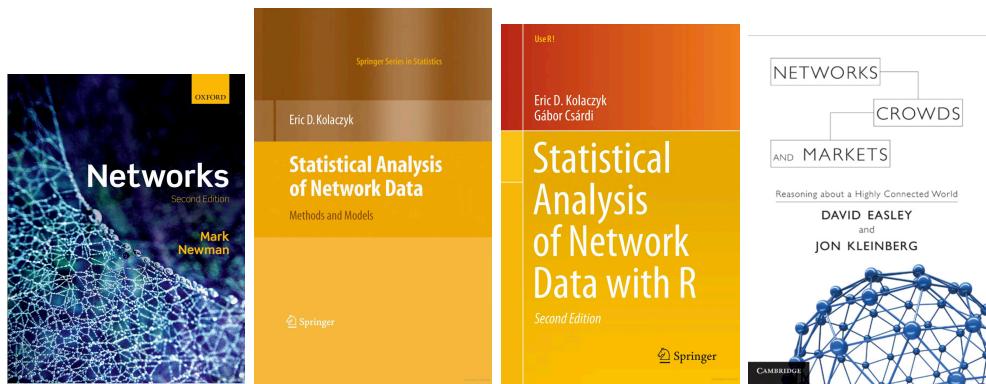
- Open Anaconda Prompt (Windows) or your terminal (macOS/Linux).
- Create a new environment with the required packages by running:

```
conda create --name ST5225 python=3.8 networkx numpy pandas matplotlib scipy  
conda activate ST5225
```

Installing R (if needed)

- Download R from <https://cran.r-project.org/>.
- Follow the instructions for your operating system to install R.

Textbooks



- I recommend “Networks” by M. Newmann for the 1st half of the course. You can download it through the NUS Library system.
- The other textbooks are supplementary.
- The second half will be based on separate materials, given session by session.