# INTRODUCCIÓN A LA ANALÍTICA DE GRAFOS

CÁTEDRA INTERNACIONAL de la Facultad de Ingeniería de la Universidad Nacional de Colombia

## First week Homework Assignment

**Question:** Use what you have learned about Network Analysis to describe the structure of a network corresponding to real data.

**Expected documents:**

-A Jupyter notebook (export as HTML) containing the code used, with textual comments (Text cells) to describe the meaning of processes done in each cell.

-A report (PDF/Open office/Word/Latex) containing an analysis of the studied network. If you prefer, you can use only a notebook, but in that case it must be structured as a report (You can use Markdown language (https://en.wikipedia.org/wiki/Markdown)  in Jupyter notebook)

**Additional information:**

The aim of the assignment is not to evaluate your technical skills (ability to write complex code…), but to see what information you can learn, what insights you can gain on the data you are analyzing.

Therefore each section of the report must be composed of:

-The code (When relevant)

-The result obtained

-The interpretation (a paragraph) stating what you have learned about your data

Which technique you use is up to you, but I'm expecting at least:

-A meaningful and readable visualization produced using Gephi

-An analysis based on centralities

-An analysis based on communities

If you don't know where to start, you can get inspiration from this very simple analysis:

**https://www.maa.org/sites/default/files/pdf/Mathhorizons/NetworkofThrones%20%281%29.pdf**

(But you should have the knowledge to do better)

The best report should "tell a story", i.e. I should learn something about the network you have chosen by reading your report.

You can analyse any network you want, from very large to only 20 nodes.

You can choose a network from my repository:
-http://cazabetremy.fr/Teaching/catedra/
Or from a network repository:
-https://sites.google.com/site/ucinetsoftware/datasets
-http://moviegalaxies.com
-https://snap.stanford.edu/data/index.html
-http://konect.uni-koblenz.de/networks/

Or use your own.