



Course:

Biological Network Analysis

Date: 17 & 18 September 2015, 10:00-17:00

Location: VU University Medical Center Amsterdam, Medical Faculty building, room H161

Coordinators: Christian Rausch (VUmc), Gunnar Klau (VU & CWI), Martina Kutmon (Maastricht University), Celia van Gelder (BioSB).

Website: www.drylab.nl/teaching-and-trainings/course-biological-network-analysis/
(= <http://tinyurl.com/pl5yreh>)

Registration: goo.gl/QBFtxm

Please note that PhDs who are or become a member of the BioSB research school can register at a reduced fee.

Course content

We will discuss the concepts of networks, and their application to biological examples like gene interaction networks, metabolic pathways, gene regulation- and signal transduction pathways. We will introduce the graphical programs PathVisio and Cytoscape and use it in the practical training for data visualization and analysis. We will use pathways from public resources like WikiPathways to create pathway visualizations and analyze experimental data. Furthermore, we will analyze differential gene expression data and will identify the affected metabolic (sub)pathways (KEGG/ gene ontology).

Invited speakers

- Prof. Dr. Frank Emmert-Streib, Computational Medicine and Statistical Learning, Tampere University of Technology, Finland: "The microscope of the 21st century: biological networks".
- Piet Molenaar, developer Cytoscape project, UvA, Amsterdam: "Network related algorithms and visualization of results in Cytoscape"

Focus of the course and Target audience

The focus of the course is on integrative approaches in pathway and network analysis with a hands-on training on the visualization and analysis programs PathVisio and Cytoscape. The participants will acquire practical knowledge that they can apply directly in their research on visualization and analysis of 'omics' data with networks.

The course is aimed at PhD students, PostDocs and researchers in the field of biology or bioinformatics. While the majority of the course content is applied 'hands-on' and uses mainly graphical programs (PathVisio and Cytoscape), the participants should also have an interest in learning more about the technical (mathematical) background, and do simple data pre-processing steps on the command line (R and Linux, of which no prior knowledge is required, commands to use are provided).

BioSB Education Program

This course is part of the Education Program of BioSB, the Netherlands Bioinformatics and Systems Biology Research School, which offers training and education in bioinformatics and systems biology. More information about BioSB can be found at www.biosb.nl.