lpsys2168
2019

Advanced workshops of analysis methods: CIntroduction to graph theory and statistical network models for psychologists

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

2 credits	15.0 h	Q2

Teacher(s)	Heeren Alexandre ;
Language :	English
Place of the course	Louvain-la-Neuve
Aims	*The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** Oral presentations + assessment via exercices on real data.
Teaching methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** Workshop
Content	Graph theory and network analysis have recently started to infiltrate psychology and neuroscience, especially in research programs dealing with huge data sets and connectivity issues. Accordingly, this course will provide a general overview of graph theory and network analysis. Illustrations on real data sets will be provided throughout the workshop. Given the diversity of the audience, examples will be ranging from the study of social networks to brain networks and symptoms connectivity. Course participants will: - become familiar with general notions of graph theory and network analysis - learn how to model network data using R, to implement algorithms from the field of graph theory (e.g., community detection, smallwordness), and to use tools from data science (e.g., graphical Lasso) to optimize network estimation and visualization - understand the advantages, challenges, and limitations of network analysis in comparison to other analytical approaches - and become able to critically assess papers dealing with network analysis and graph theory in the field of psychology and neuroscience.
Inline resources	Handouts as well as examples of programming codes will be made available via Moodle.
Bibliography	A list of reading articles will be provided at the end of each session.
Faculty or entity in charge	EPSY

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Education (shift schedule)	FOPA2M	2		🔍
Master [120] in Psychology	PSY2M	2		🔍