**Call for Expression of Interest for a Free Training Course on Network Science and Network Data Analysis**

Makerere University School of Public Health in collaboration with the University of Georgia will conduct a Training workshop on network science and network data analysis, between October 21st and 25th 2024 at the School of Public Health, College of Health Sciences, Makerere University. We are receiving expression of interest for attendance of the above training.

**Course overview:**

At the simplest level, networks describe how things are connected to each other. They are a type of ‘wiring’ diagram that connects objects together. These objects may be computers on the internet, websites on the World Wide Web, molecules in a chemical reaction, genes in the genome, or people in a population. When the objects are people, the network opens up our understanding of how populations are self-organized and how they are connected. These networks give rise to complex adaptive systems that exhibit emergent behaviour and may provide insight into the occurrence of diseases in humans.

The goal of this course is to learn how methods in network science may be used in epidemiology to study the occurrence and distribution of disease. Network analysis can provide new insights into how to assess the effectiveness of public health interventions and offer insights into the development of new interventions to improve the health of a population.

**Course prerequisites:**

To benefit from this training workshop, one should have undertaken a basic introductory epidemiology and statistics, and possess a working knowledge of R software. Although there are some stand-alone programs that may be used to analyze networks, such as Gephi, Ucinet, or Pajek, the packages in R that were developed for network analyses (e.g., statnet and igraph) are the more flexible and are freely available (including documentation).

**Target audience:**

The course is suitable for graduate students and or faculty, researchers and health professional**s**

**Mode of delivery:**

The class will meet in-person daily for 5 days with 2 one-hour sessions. These sessions will be didactic and explain the key concepts of networks and how to interpret network statistics. The classes will follow the order and content of the textbook entitled ‘Network Science’ by A-L Barabasi (and is available online at no cost). The class will use lecture notes and educational materials from the book’s website; in other words, check the website for all of the materials. There are some topics that are not fully covered in the textbook; for completeness, these topics will be covered in class lectures and supplemental materials.

A small group of interested participants will be selected to participate in hands-on basic programming and analysis, after the end of theoretical lectures.

**Course modules:**

* Graph theory 1
* Graph theory 2
* Small group – creating a network
* 5 number network summary
* Measures of Centrality, assortativity
* Small group – analyzing networks
* Network visualization
* Random networks 1
* Small group – network visualization
* Random network 2
* Scale-free networks
* Spreading phenomenon on networks – infectious diseases
* Network studies of TB in Kampala

**Registration:**

Registration is free but must register to attend. Registration deadline: Sunday, October, 13th 2024, 11:59 pm.

Registration link: <https://docs.google.com/forms/d/e/1FAIpQLSfGJ7TTHeBCyjLrnuGqMwx-iGRWv4gZluRYzUvaKaRQY8KmTw/viewform?usp=sf_link>

**Instructors:**

**Lead Instructor**: Christopher C. Whalen, M.D., M.S.

Professor of Epidemiology and Biostatistics

University of Georgia

**Co-instructor**:Ms**.** Irene Wanyana, School of Public Health, Makerere University

**Contacts/ Further inquiries:**

Mr. Ivan Mutyaba, D43 Training Program Coordinator, imutyaba@musph.ac.ug