# Modeling Network Communications with Matlab

## 4-th Summer Workshop for High School Students at the Institute of Mathematica Sciences

*Claremont Graduate University,*
*Math North Building,*
1263 N Dartmouth Ave*. (June, 3 – 14, 2019)*

The interaction between the elements of social, technological, biological, chemical, and physical systems usually defines complex networks. Network theory is the study of graphs as a representation of either symmetric relations or asymmetric relations between discrete objects. In computer science and network science, network theory is a part of graph theory: a network can be defined as a graph in which nodes and/or edges have names. For example networks and graphs play a crucial role in the Internet because the World Wide Web (WWW) has grown at a remarkable rate, both in size and importance. Within the fields of biology and medicine, applications of network analysis include identifying drug targets, determining the role of proteins or genes, and designing effective containment strategies for infectious diseases. During this workshop you will learn how to model networks, to analyze their properties, and to optimize network structure to achieve better communication. You will also learn how to use the Matlab to work with graph representations of real data.

Students will be split into small groups to work under the supervision of an applied mathematics professor and graduate students. A certificate of workshop completion will be provided at the end of the course.

**Registration for** *(Monday - Friday, 2:00 pm – 6:00 pm, June 3 – June 14, 10 classes (1000$))*

Please do not submit any payments until you are notified that you are accepted. Two project teams will be formed from the participants. If you are applying with your friends and would like them to be in your team please mention their names on your application. If we are not able to reserve a spot for you in summer 2019 we will give priority consideration to your application next year. The decision letters on acceptance will be sent to all applicants before May 31.

**Optional: the application can be supported by a recommendation letter from a teacher**
**Deadline: applications are accepted until May 25**

**To receive an application form, send an e-mail of interest in the program to:**
**Christina Duron:** *duronchristina@gmail.com*