American Institute of Mathematics Summer School on

Dynamics, Data and the COVID 19 Pandemic.

Dates: June 22-July 31, 2020

Graduate students and advanced undergraduates are invited to apply to this online summer program on the mathematics of this critical and timely topic. It will be restricted to US citizens and permanent residents and there will be stipend of $6,000 for each student.

The school will be very interactive with a structured working day consisting of group discussions, 1-1 interactions, small group meetings, and individual working time. The students and faculty will advance their understanding of the topic and the issues together through online videos and group brainstorming. A collaborative infrastructure will be set up including a virtual office, shared whiteboards, common video watching rooms as well as the now standard video conferencing. The school will be led by faculty who have been using these platforms for a decade through the Mathematics and Climate Research Network.

An enrolled student can expect to learn the basic mathematical epidemiology underlying the models used in studying COVID19. We will take a dynamical systems perspective and learn the necessary ideas and techniques from this area together. We will look at models ranging from the basic SIR model through network models, metapopulation models to agent-based models. As well as looking at the interesting mathematical questions about these models and their dynamics, we will consider the context in which each may be useful and look at the use of model predictions for planning and decision-making.

The school will not take a direct statistical perspective on data, but rather focus on how information in the data can be balanced with model predictions in a structured mathematical way. We will use the data and models together to consider how such strategies as lockdown have impacted the disease's progression, and what this means for future planning and progression of the disease over the next year.

Faculty: Linda Allen (Texas Tech), James Broda (Bowdoin), Pauline van den Driessche (UVic), Hans Engler (Georgetown), John Gemmer (Wake Forest), Hans Kaper (Georgetown), Richard McGehee (Minnesota), Jack O'Brien (Bowdoin), Nancy Rodriguez (CU-Boulder), Christian Sampson (UNC-Chapel Hill), Mary Silber (Chicago), Erik Van Vleck (Kansas), Jianhong Wu (YorkU), Abdul-Aziz Yakubu (Howard) and Mary Lou Zeeman (Bowdoin).

Program Director: Christopher Jones (UNC-Chapel Hill) ckrtj@renci.org

For more information and a link to the application, go to: https://aimath.org/