

# Modeling and Optimization Techniques for Ensuring Robustness in Complex Networked Systems

VLADIMIR BOGINSKI

*University of Florida, USA*

## **Abstract**

Complex networked systems arise in a variety of domain areas, including transportation networks, information exchange networks, electric power grids, social networks, financial networks, etc. One of the important areas from systems engineering perspective is to ensure robustness in these networked systems, where various parameters and metrics can be considered in order to quantify robustness. In this course we will discuss some aspects of this broad area, including identification and design of "highly connected" robust clusters in complex networks, as well as finding "critical elements" of a network that are important for preserving its connectivity. We will also discuss possible practical interpretations of the developed models.