

## Course Topics

### EEE 598: Network Information Theory

**Prerequisites:** Information theory (EEE 551 or equivalent)

**Course Description:** This course covers information theory as it relates to networked communication systems. The course will broadly be broken into three parts: (1) Study of single-hop networks, such as the multiple-access channel, broadcast channel, distributed source coding, (2) Study of multi-hop networks, including noiseless network coding, and the impact of eavesdropping and adversarial attacks, and (3) Research projects by students, who will choose their own topics to present to the rest of the class.

#### Course Topics:

- \_ Packing and covering lemmas
- \_ Multiple-access channels
- \_ Broadcast channels
- \_ Interference channels
- \_ Gaussian vector channels
- \_ Distributed compression (lossless and lossy)
- \_ Relay channels
- \_ Network coding
- \_ Eavesdropping and adversarial attacks on network coding