Today, we are witnessing a renaissance in an area of distributed systems: edge computing and systems. Simply put, the edge refers to the vast collection of resources located outside of the network core and closer to the users (e.g. computing, storage, bandwidth). Edge computing complements cloud computing by offer additional capabilities at the network edge, and offers these advantages:

1. Reducing latency, network cost, and improving QoS
2. Improving performance of in-situ computing needed for BigData applications where data is generated at the edge
3. Improving fault tolerance by reducing reliance on the core central computing environment
4. Scaling out: acquiring resources on demand from many points in the network

Edge computing can enhance many application domains such as content delivery and streaming, mobile applications, internet-of-things, sensor processing, to name a few.

In this course, we will examine the many instantiations of edge computing including earlier systems (utility computing, peer-to-peer, the Grid, and content distribution networks, and others), and current systems (edge clouds, cloudlets, fog computing, mobile clouds, and others) to develop an understanding of common issues, approaches, and paradigms. We will explore not only architectural and systems issues, but also explore novel applications enabled by edge computing in a wide-variety of settings.

The course is suitable for any graduate student that has taken at least CSci 5103 and ideally CSci 5105 or other 8xxx classes. Students unsure of their background should check with the instructor. The course will be run as a seminar with informal paper readings, critiques, and discussions. A final project will also be required.