

CSI 4240: Cloud Computing

**Credits Hours:** 4 credits, 3.57 contact hours/week.

**Instructor:** Debatosh Debnath, Ph.D.

**Text book:** K. Hwang, G. Fox, and J. Dongarra, Distributed and Cloud Computing: From Parallel Processing to the Internet of Things, Morgan Kaufmann, 2012.

### **Specific course information**

The course explores the latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature.

**Prerequisites:** Senior or graduate standing

### **Elective course**

**Course Objectives:** Upon successful completion of this course, students should be able to

- Compare and contrast virtual machines and cluster computers [ABET CS: (a, j)]
- Demonstrate understanding of automated data centers [ABET CS: (a, i)]
- Describe cloud services and service-oriented architectures [ABET CS: (a)]
- Explain cloud programming and software environments [ABET CS: (a)]
- Identify challenges and opportunities in cloud computing [ABET CS: (e, g, h)]

### **List of Topics:**

- Computer clusters
- Virtual machines
- Automated data centers
- Cloud platform architectures
- Service-oriented architectures
- Cloud programming
- Software environments
- Grid computing
- Peer-to-peer computing