CS 63304/73304  CLUSTER COMPUTING      3 Credit Hours

Instructor’s Name: Qiang Guan

(Textbook Title, Author, Year)
(Other Supplemental Material)

Course Content:
(Cross-listed with CS 73304) This course will investigate clusters of computers as a computing platform, hardware and software tradeoffs for clusters and application performance and programming of clusters.

Prerequisites or co-requisites: Graduate standing
Required: BS-CS
Elective: BS-Other

Topics to be Covered: 45 hours
1. Concepts of cluster system, 3 hours.
2. Hardware and software designed for cluster system, 6 hours.
3. Programming models on cluster system, 6 hours.
4. Message passing interface, 6 hours.
5. Resource management, 6 hours.
6. Scheduling, Monitoring and fault tolerance, 6 hours.
7. Parallel visualization, 6 hours.
8. Performance evaluation, 6 hours.

Learning Outcomes:
1. Understand architecture, system and software design for cluster computing.
2. Grasp the programming skills on cluster computing systems.
3. Understand how to design resource manager, scheduler and monitor on cluster computing systems.
4. Understand how to evaluate the performance of the cluster system.
5. Grasp the use of parallel visualization tools.

Learning Outcomes Assessment:
1. Four-five moderate length programming assignment.
2. Two-three written assignments.
3. Midterm and Final exams.
4. Scientific research publication reading and presentation.
5. Term project.