School of Computer Science
University of Guelph

CIS*4410
Trends in Distributed Systems
Winter 2017

- Instructor

  Xining Li, Reynolds 315, X56548, xli@cis.uoguelph.ca

- Lecture Hours and Room

  Mon/Wed/Fri: 9:30 – 10:20 AM, MCKN 236

- Office Hours

  Tuesday: 9:00–11:20.
  An appointment beyond office hours can be made through emails.

- Calendar Description

  A course that examines the technical issues surrounding modern and future distributed commercial enterprises. Special attention is given to new communication modes, high volume, data-intensive systems, distributed transactions and security mechanisms.

- Course Topics

  - Characterization of Distributed System
    > Definition and Examples of Distributed Systems, and Resource Sharing
  - System Model
    > Architectural and Fundamental Model
  - Networking and Internetworking
    > Types of Network and Network Principle
  - Protocol Architecture
    > TCP/IP Protocol Architecture, Open Systems Interconnections (OS)
  -Inter-process Communication:
    > Client-Server Communication and Group Communication.
  - Distributed Objects and Remote Invocation
    > Remote Method Invocation (RMI)
    > Events and Notifications.
    > Distributed Objects and CORBA
  -Distributed File Systems
  - Peer to Peer Systems

- Time and Global States
  > Synchronizing Physical Clocks
  > Logical Clocks
  > Global States and Consistent Cuts
  > The snapshot algorithm
  > The Distributed Debugging
- Coordination and Agreement
  > Distribute Mutual Exclusion
  > Elections
  > Multicast Communication
- Transactions and Concurrency Control
-Security
  > Overview of Security Techniques and Digital Signature
- Introduction to Web Services

- Course Web:

  http://moodle.socs.uoguelph.ca

- Evaluation

  In determining the overall grade of the course, the following weights will be used:

  - Assignments:
    - Assignment 1: 15%
    - Assignment 2: 20%
    - Assignment 3: 25%
  - Team Project: 40%

- Schedule of Dates:

  - Jan. 27, 2017, A1 Due
  - Feb. 24, 2017, A2 Due
  - Mar. 17, 2017, A3 Due
  - Apr. 7, 2017, Project Due
  - Apr. 7-9, 2017, Project Demo

- Special Note

  • All cases of academic misconduct are handled by the Dean, in conjunction with the School Director. Successive infractions of misconduct affirmed by this process could have consequences as serious as expulsion from the University. For details please see related pages in the University of Guelph Undergraduate Calendar 2016-2017.
  • Requests for academic consideration because of illness or of a compassionate nature must be made in writing and accompanied by certification whenever possible.