CS 553:
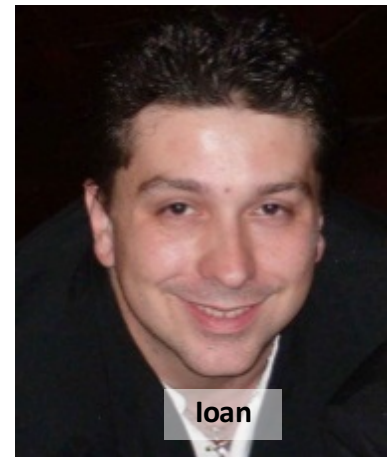## Cloud Computing

Syllabus

Ioan Raicu
Computer Science Department
Illinois Institute of Technology

CS 553: Cloud Computing
January 11th, 2016

Introductions

- **Professor: Ioan Raicu**
  - Office Hours Time: Monday/Wednesday 12:50PM-1:50PM (SB237D)
  - More Information:
    - http://www.cs.iit.edu/~iraicu/
    - http://datasys.cs.iit.edu/

- **TAs (cs553-s16@datasys.cs.iit.edu):**
  - **TBA**

Ioan

Course Overview

- This course is a tour through various topics and technologies related to Cloud Computing

- Explore solutions and learn design principles for building large network-based systems, to support compute and data intensive computing across geographically distributed infrastructures

- Discussions often grounded in real Cloud Computing systems:
  - Amazon EC2 and S3, Microsoft Azure, Google AppEngine, Eucalyptus, Nimbus, OpenStack, Google's MapReduce, Yahoo's Hadoop, Microsoft's Dryad, Sphere/Sector, etc

Course Overview (cont)

- Understand methods and approaches to:
  - Design, implement, and evaluate cloud computing systems
- Course involves:
  - Lectures, outside invited speakers, programming assignments, projects, quizzes, and exams
- Prerequisites:
  - Required: CS450 (Operating Systems) or CS455 (Data Communication)
  - Recommended: CS550 (Advanced Operating Systems)
  - Helpful: CS451, CS542, CS546, CS551, CS552, CS554, and CS570
- Required texts:
  - Distributed and Cloud Computing: Clusters, Grids, Clouds, and the Future Internet by Kai Hwang, Jack Dongarra & Geoffrey C. Fox.

Course Topics

- Distributed System Models

- Parallel Computing

- Virtualization

- Cloud Platform Architectures
  - Amazon AWS
  - Microsoft Azure
  - Google App Engine
  - Google MapReduce / Yahoo Hadoop
  - Eucalyptus, Nimbus, OpenStack

- Cloud Programming

- Grid Computing

- Supercomputing

Assignments

- Programming Assignments
  - 3 assignments
  - Will give hands on experience with cloud computing programming
  - Must work individually
  - Expected to know (or learn quickly) some of these languages and systems:
    - Linux, Virtual Machines, Amazon AWS, Google App-Engine, Hadoop, Swift, multi-threading, sockets, C/C++, Java, Python, Bash
- Project
  - 1 assignment
  - Will enforce theoretical foundation of cloud computing technologies
  - Must work individually

Exams

- 2 Exam and 1 cumulative Final Exam
- The exam will be individual, but students will be allowed to use their textbooks and any notes they have (on paper)
  - No electronic devices such as phones, eReaders, tables, or laptops will be allowed; simple calculators can be used
  - The exams are worth 15% each, and the final is worth 20% of the overall grade
- Schedule:
  - **Exam #1: Monday, February 15th, 2016 from 11:25AM – 12:40PM in Wishnick Hall 113**
  - **Exam #2: Wednesday, March 23rd, 2016 from 11:25AM – 12:40PM in Wishnick Hall 113**
  - **Final Exam: Monday, April 25th, 2016 from 11:25AM – 12:40PM in Wishnick Hall 113**
- **There will be no makeup exam.**

Late Policy

- Assignments will be due at 11:59PM on the date they are due; there will be a 15 minute grace period

- There will also be a 7-day late pass, where students can submit late assignments without penalty
  - The late pass can be used in 1-day increments spread out over multiple assignments.
  - Any late submissions beyond the grace period and beyond the 7-day late pass, will be penalized 10% every day it is late

- Exams
 - There will not be any makeup exams; do not miss any exam or you will get a 0

Grading

- Breakdown:
  - Programming Assignments (3): 40% -- can use late day passes (PA1=10%, PA2=15%, PA3=15%)
  - Project (1): 10% -- can use late day passes
  - Exam (2): 30% -- NO MAKEUPS
  - Final Exam (1): 20% -- NO MAKEUPS

- Scale:
  - **A:** 87% ~ 100%
  - **B:** 75% ~ 86% ➜ class average
  - **C:** 60% ~ 74%
  - **E:** 0% ~ 59%

Required texts

- We will be using the textbook Distributed and Cloud Computing: Clusters, Grids, Clouds, and the Future Internet by Kai Hwang, Jack Dongarra & Geoffrey C. Fox.
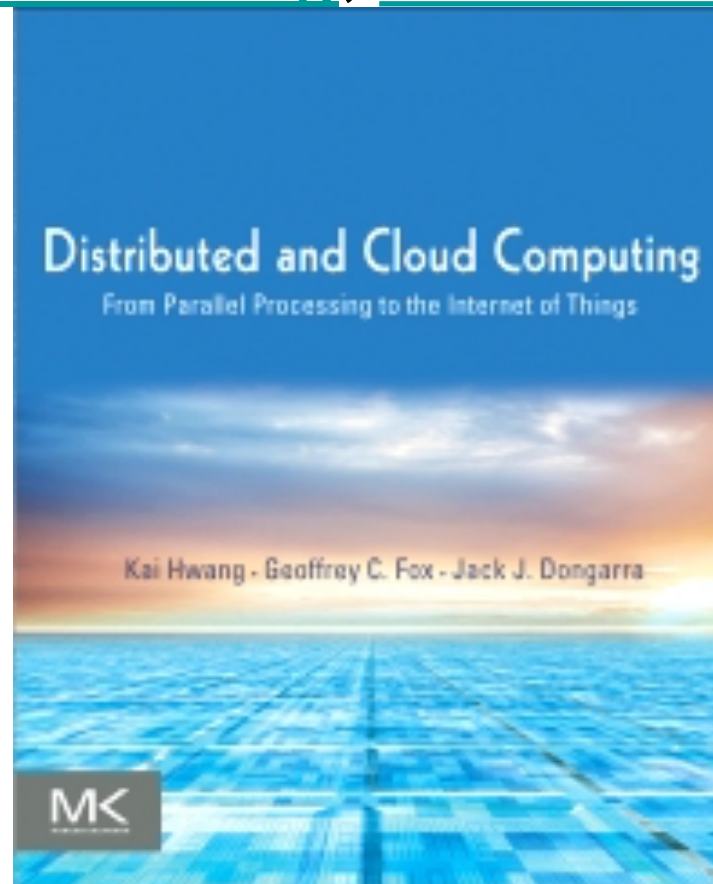
Questions

- Write me:
  - iraicu@cs.iit.edu
- Call me:
  - 1-312-567-5704
- Write the Tas and me:
  - cs553-s16@datasys.cs.iit.edu
- Online discussion forum:
  - http://piazza.com/iit/spring2016/cs553/home