

CS 553: Cloud Computing

Syllabus

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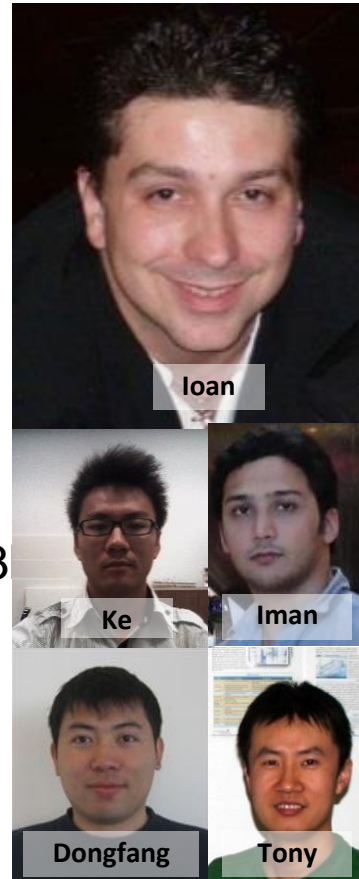
Introductions

- **Professor: Ioan Raicu**

- Office Hours Time: Monday/Wednesday 12:45PM-1:45PM (SB237D)
- More Information:
 - <http://www.cs.iit.edu/~iraicu/>
 - <http://datasys.cs.iit.edu/>

- **TAs (cs553-f14@datasys.cs.iit.edu):**

- **Ke Wang (kwang22@hawk.iit.edu)**
 - Office Hours Time: Monday/Thursday 3PM-4PM (SB002)
- **Iman Sadooghi (isadoogh@iit.edu)**
 - Office Hours Time: Tuesday/Friday 12:45PM-1:45PM (SB003)
- **Dongfang Zhao (dzhao8@hawk.iit.edu)**
 - Office Hours Time: Tuesday/Thursday 2PM-3PM (SB002)
- **Tonglin Li (tli13@iit.edu)**
 - Office Hours Time: Wednesday/Friday 10AM-11AM (SB002)



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
- Service-Oriented Architectures
- Cloud Programming
- Grid Computing
- Peer-to-Peer Computing

Assignments

- Programming Assignments
 - 4 assignments
 - Will give hands on experience with cloud computing programming
 - Should work in teams of 3
 - 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
 - Should work in teams of 3

Quizzes

- 6 brief (15 min) quizzes covering material from prior 2 weeks
- The quizzes 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, tablets, or laptops will be allowed; simple calculators can be used
 - Quizzes are worth 5% each; the lowest grade quiz will be dropped
- Schedule:
 - **Wednesday, September 10th, 2014, 12:25PM – 12:40PM in SB104**
 - **Wednesday, September 24th, 2014, 12:25PM – 12:40PM in SB104**
 - **Wednesday, October 8th, 2014, 12:25PM – 12:40PM in SB104**
 - **Wednesday, October 22nd, 2014, 12:25PM – 12:40PM in SB104**
 - **Wednesday, November 5th, 2014, 12:25PM – 12:40PM in SB104**
 - **Wednesday, November 19th, 2014, 12:25PM – 12:40PM in SB104**
- **There will be no makeup quizzes.**

Exams

- 1 Exam covering the entire course content
- 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, tablets, or laptops will be allowed; simple calculators can be used
 - The exam is worth 25% of the overall grade
- Schedule:
 - **Wednesday, December 3rd, 2014, 11:25AM - 1:25PM in SB104**
 - Please note that the exam is extended for 45 minutes after the usual end of class, but this should not interfere with anyone's other classes due to the lunch period. Also note that the exam is scheduled the week prior to the official final exam week.
- **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 & Quizzes
 - There will not be any makeup quiz or exam; do not miss any quiz or exam

Grading

- **Project (1):** 10% -- can use late day passes
- **Programming Assignments (4):** 40% -- can use late day passes
- **Quiz (6):** 25% -- will drop lowest grade
- **Exam (1):** 25%
- **Scale:**
 - **A:** 87% ~ 100%
 - **B:** 75% ~ 86% → class average
 - **C:** 62% ~ 74%
 - **D:** 50% ~ 61%
 - **E:** 0% ~ 49%

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-f14@datasys.cs.iit.edu
- Online discussion forum:
 - <http://piazza.com/iit/fall2014/cs553/home>
- Office hours:
 - **Monday:** 12:45PM-1:45PM (Ioan SB237D), 3PM-4PM (Ke SB002)
 - **Tuesday:** 12:45PM-1:45PM (Iman SB003b), 2PM-3PM (Dongfang SB002)
 - **Wednesday:** 10AM-11AM (Tony SB002), 12:45PM-1:45PM (Ioan SB237D)
 - **Thursday:** 2PM-3PM (Dongfang SB002), 3PM-4PM (Ke SB002)
 - **Friday:** 10AM-11AM (Tony SB002), 12:45PM-1:45PM (Iman SB003b)