

# **CS 553:** **Cloud Computing**

## **Syllabus**

**Ioan Raicu**

**Computer Science Department  
Illinois Institute of Technology**

**Presented by:**

**Alex Orhean and Poornima Nookala**

**CS 553: Cloud Computing  
January 8<sup>th</sup>, 2018**



# Introductions

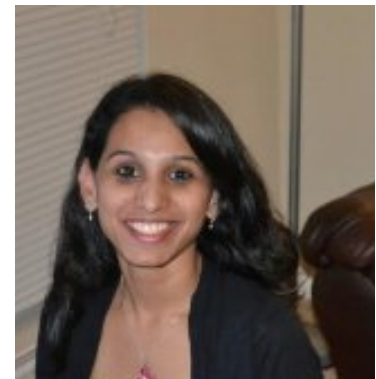
- **Professor: Ioan Raicu** <iraicu@cs.iit.edu>
  - Office Hours Time: Wednesday 12:45PM-1:45PM (SB226B)
  - More Information:
    - <http://www.cs.iit.edu/~iraicu/>
    - <http://datasys.cs.iit.edu/>
- **TAs**
  - **Alex Orhean**
    - [aorhean@hawk.iit.edu](mailto:aorhean@hawk.iit.edu)
    - Mon 12:45PM-1:45PM (SB007)
    - Wed 10:15AM-11:15AM (SB007)
  - **Poornima Nookala**
    - [pnookala@hawk.iit.edu](mailto:pnookala@hawk.iit.edu)
    - Mondays 10:15AM-11:15AM (SB007)
    - Thursday 12:45PM-1:45PM (SB007)



**Ioan**



**Alex**



**Poornima**

# 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 AWS (EC2, S3, SQS), Microsoft Azure, Google AppEngine, OpenStack, Google's MapReduce, Yahoo's Hadoop, Spark, 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, and exams
- Prerequisites:
  - Required: CS450 (Operating Systems) or CS455 (Data Communication)
  - Helpful: CS451, CS542, CS546, CS550, CS551, CS552, CS554, CS570, and CS595 (VMs)
- 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
- Cloud Platform Architectures
- Cloud Programming
- Grid Computing
- Supercomputing

# Assignments

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



# Cheating will not be tolerated

- MOSS: Measure Of Software Similarity  
<https://theory.stanford.edu/~aiken/moss/>
- Automatic system for determining the similarity of programs
  - We will compare to past submissions starting from 2011
- Supports many languages:
  - C, C++, Java, C#, Python, Visual Basic, Javascript, FORTRAN, ML, Haskell, Lisp, Scheme, Pascal, Modula2, Ada, Perl, TCL, Matlab, VHDL, Verilog, Spice, MIPS assembly, a8086 assembly, a8086 assembly, MIPS assembly, HCL2
- **You will receive a 0 on assignment; extremely serious offences will fail the course**

# MOSS Plagiarism Detection

Moss Results

Tue Sep 8 23:29:31 PDT 2015

Options -l python -d -m 10

[ [How to Read the Results](#) | [Tips](#) | [FAQ](#) | [Contact](#) | [Submission Scripts](#) | [Credits](#) ]

File 1	File 2	Lines Matched
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# MOSS Plagiarism Detection

/home/ubuntu/Projects/work/2015/uct-csc1010h/tutorials/4/raw/ [redacted] (68%)	[redacted]	/home/ubuntu/Projects/work/2015/uct-csc1010h/tutorials/4/raw/ [redacted] (73%)	[redacted]
4-71	[red bar]	2-66	[red bar]
95-111	[green bar]	90-106	[green bar]
74-91	[blue bar]	69-86	[blue bar]
115-132	[cyan bar]	110-127	[cyan bar]

/home/ubuntu/Projects/work/2015/uct-csc1010h/tutorials/4/raw/ [redacted]

```
>>> file: LongJump.py
#S [redacted]

print("***** Long Jump Information System *****")
print("Please enter the names of competitors. (Press return when done.)")
print("Competitor no. 1:")
competitor = input()
b,c,g,h,d,k = 1,0,0,0,[],0
maxi,competitors = [],[competitor]
while True:
    b += 1
    print("Competitor no. "+str(b)+":")
    competitor = input()
    if competitor == "":break
    else:
        competitors.append(competitor)
print("Please enter the distances for each competitor.")
for each in competitors:
    print("Competitor " each ":" sep="")
    at1 = input("Attempt 1:\n")
    at2 = input("Attempt 2:\n")
    at3 = input("Attempt 3:\n")
    x = (at1+at2+at3).lower()
    if (at1+at2+at3).find("oul") != -1:
        x = (at1+at2+at3).lower()
        d.append(at1)
        d.append(at2)
        d.append(at3)
    maxi.append(max(eval(at1),eval(at2),eval(at3)))
```

/home/ubuntu/Projects/work/2015/uct-csc1010h/tutorials/4/raw/ [redacted]

```
>>> file: LongJump.py
[redacted]

print("***** Long Jump Information System *****")
print("Please enter the names of competitors. (Press return when done.)")
print("Competitor no. 1:")
competitor = input()
b,c,g,h,d,k = 1,0,0,0,[],0
maximums,competitors = [],[competitor]
while True:
    b += 1
    print("Competitor no. "+str(b)+":")
    competitor = input()
    if competitor == "":break
    else:
        competitors.append(competitor)
print("Please enter the distances for each competitor.")
for each in competitors:
    print("Competitor " each ":" sep="")
    attempt1 = input("Attempt 1:\n")
    attempt2 = input("Attempt 2:\n")
    attempt3 = input("Attempt 3:\n")
    g = (attempt1+attempt2+attempt3).lower()
    if (attempt1+attempt2+attempt3).find("oul") != -1:
        g = (attempt1+attempt2+attempt3).lower()
        d.append(attempt1)
        d.append(attempt2)
        d.append(attempt3)
        maximums.append(max(eval(attempt1),eval(attempt2),eval(attempt3)))
    d.remove("foul")
    if not "foul" in d:
```

# Exams

- 1 Final Exam
- The exam will be individual
  - Closed book or notes
  - No electronic devices such as phones, eReaders, tablets, or laptops will be allowed
  - The exam is worth 45% of the final grade
- Schedule:
  - Exam will take place during official exam week between April 30th and May 4th 2018
- **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 4-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 4-day late pass, will be penalized 20% 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

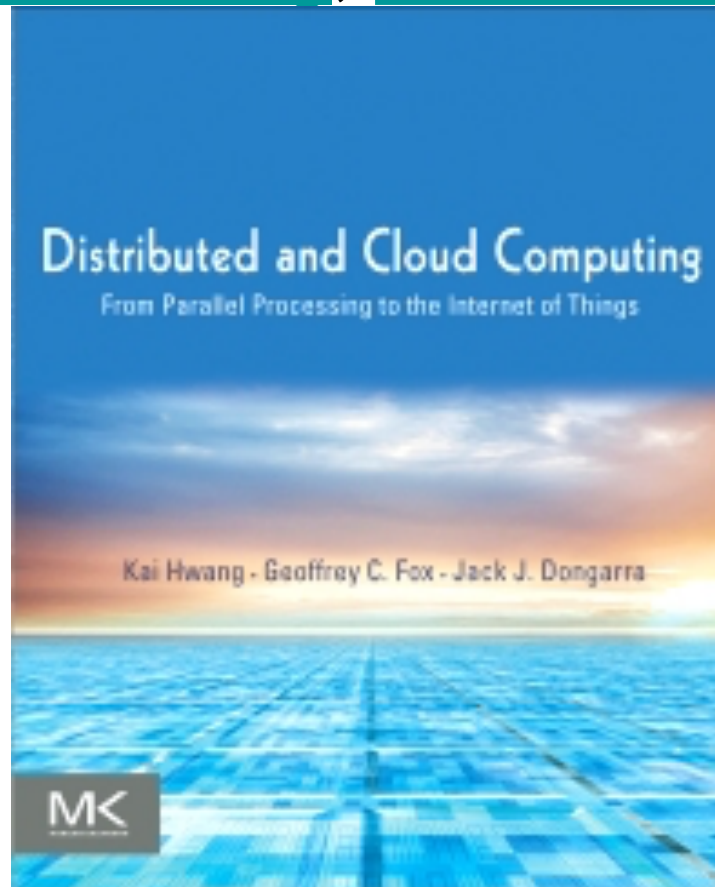
- Breakdown:
  - Programming Assignments (3): 45% -- can use late day passes (PA1=15%, PA2=15%, PA3=15%)
  - Project (1): 10% -- can use late day passes
  - Exam (1): 45% -- NO MAKEUPS
- Scale (graduate students):
  - **A:** 85% ~ 100%
  - **B:** 70% ~ 84% → class average
  - **C:** 50% ~ 69%
  - **E:** 0% ~ 49%

# Grading (undergrads)

- Scale:
  - **A:** 85% ~ 100%
  - **B:** 70% ~ 84%
  - **C:** 60% ~ 69%
  - **D:** 50% ~ 59%
  - **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](mailto:iraicu@cs.iit.edu)
- Call me:
  - 1-312-567-5704
- Write the TAs and me:
  - [eorhean@hawk.iit.edu](mailto:eorhean@hawk.iit.edu)
  - [pnookala@hawk.iit.edu](mailto:pnookala@hawk.iit.edu)
- Online discussion forum:
  - <http://piazza.com/iit/spring2018/cs553/home>