Distributed Systems

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http://www.inf.ed.ac.uk/teaching/courses/ds
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Organisational Matters

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Lectures Monday/Thursday 15:10-16:00, Hugh Robson Building Lecture Theatre.

Coursework Coursework will be assigned October the 8th

Level 10 Due 4pm Thursday November 8th
Level 11 Due 4pm Thursday November 22nd

Grading ▶ Assignment (and project at level 11) — 25%
▶ Final Examination — 75%
Organisational Matters — Bonus Holiday

Bonus Holiday: There will be no lectures on Thursday 11th October and Monday the 15th of October.
No Required Textbook

- Course Textbook George Coulouris, Jean Dollimore and Tim Kindberg, Distributed Systems: Concepts and Design
  - 5th Edition: http://www.cdk5.net/
- Nancy A. Lynch, Distributed Algorithms, Morgan Kaufmann, 1996
Course Overview

1. Introduction
Discuss high-level concepts such as reasons, advantages, disadvantages and give some example distributed systems
2. **Fundamental Concepts of Distributed Systems**
   Architecture models; network architectures: Internet and LANs; interprocess communication
3. Time and Global States
Clocks and concepts of time; Event ordering; Synchronization; Global states
4. Coordination
Distributed mutual exclusion; Multicast; Group communication,
Byzantine problems (consensus and arbitrary failures)
Course Overview

5. Distribution and Operating Systems
Protection mechanisms; Processes and threads; Networked OS;
Distributed and Network File Systems (NFSs)
6. Peer to peer systems

- Routing in P2P
- Examples: Bittorrent, OneSwarm, Freenet, Ants P2P
- Domains of acceptance and reasons?
Course Overview

7. Security
  Security Concepts

- Last Year
  - Cryptographic algorithms
  - Digital signatures
  - Authentication
  - Secure Sockets

- This Year I hope to include
  - Security with particular respect to distributed systems
  - Are such systems inherently more insecure?
  - Is there additional security to be found in distribution
Last year the course work for level 10 students was very exam-like.

Level 11 students had the choice between an exam-like topic and a more practical programming based assignment.

Last year there was some ungraded course work (that was actually discussed in class)

(un)graded || (un)credited || optional

My experience is that uncredited course work is the same as unassigned course work.
Some Feedback/Advice from Last Year’s Students

► “The course topic is very interesting but the lectures are not engaging”
► “Work hard on the course work” both credited and uncredited?
► “Not a lot of practical knowledge”
► “A lot of interesting material .. but you may end up learning everything by yourselves” it’s my job to make sure this is not the case
Any Questions?