



## CS 525: Advanced Distributed Systems Spring 2010

Tuesdays and Thursdays / 1131 Siebel Center / 12.30 PM – 1.45 PM

Instructor: Dr. Indranil Gupta  
[3112 Siebel Center; [indy@cs.illinois.edu](mailto:indy@cs.illinois.edu); 265-5517]

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### What are the Main Topics?

- I. Distributed Systems Fundamentals
- II. Cloud Computing
- III. Large Distributed and Peer-to-peer Systems
- IV. Large-Scale Sensor Networks

### What do Students Learn in this Course?

- Advanced **grounding** in the theory, practice, design and pragmatisms of distributed systems.
- Study of advanced distributed systems concepts in breadth and depth via study and review of about **70+ papers in distributed systems**, both classical and contemporary.
- Knowledge of **cutting-edge research areas** such as cloud computing and wide-area distributed computing (e.g., PlanetLab)
- Only course providing **access to multiple testbeds: PlanetLab, Emulab, CCT (Illinois),** and (tentatively) **Amazon Web Services.**
- Chance to **present conference papers** in a friendly environment with peer review.
- **You write your own new conference paper!**

### You get to Write Your Own Conference Paper!

Besides advanced study of distributed systems, the course's other goal is to lead you gently, step by step, through the process of writing a conference-quality research paper (perhaps your first!). Projects from previous CS 525's have been published at top conferences such as ICDCS, Middleware, PODC, Infocom, SASO, MMCN, WORLDS, DSN, MASS (and many more!), as well as top ACM and IEEE journals, e.g., TPDS, TAAS, TOSN, TNSM (and many more!).

**Sample List of Topics (partial):** Distributed computing theory, cloud computing, peer to peer systems, sensor networks, probabilistic algorithms, the Grid, overlays, cloud scheduling, cloud programming, storage, routing, in-network processing, monitoring and management, membership, industrial systems, publish-subscribe, Byzantine fault-tolerance, distributed debugging, green computing, measurement studies, structure of networks.

**Prerequisites:** Operating Systems or Networking or Basic Distributed Systems (ideally CS 425) or equivalent.

**Course Website:** <http://www.cs.uiuc.edu/class/cs525/>

***This course can be taken to satisfy credit requirements for a PhD in the Systems&Networking area.***