



## CS 525: Advanced Distributed Systems Spring 2011

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

Instructor: Dr. Indranil Gupta  
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### What are the Main Topics?

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

### What do Students Learn in this Course?

- Advanced **grounding** in the theory, practice, design and pragmatisms of distributed systems.
- Projects that are **entrepreneurial** and **research-oriented** in nature!
- Study of advanced distributed systems concepts in breadth and depth via study and review of about **70+ papers in distributed systems**, including both academic papers and papers from industry.
- Knowledge of **cutting-edge research areas** such as cloud computing and wide-area distributed computing
- Only course providing **access to multiple testbeds: PlanetLab, Emulab, CCT (Illinois), etc.**
- Chance to **present conference papers** in a friendly environment with peer review.
- **You write your own new conference paper/build your own company/non-profit!**

### Project!

Besides advanced study of distributed systems, the course's other goal is to lead you gently, step by step, through the process of building an entrepreneurial idea and 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, DSN, (and many more!), as well as top ACM and IEEE journals, e.g., TPDS, TAAS, TOSN, TNSM. This is the first semester that the course is being offered with an entrepreneurial flavor!

Sample List of Topics (partial): Cloud computing, theory, peer to peer systems, sensor networks, overlays, cloud scheduling, cloud programming, storage, in-network processing, management, membership, industrial systems, publish-subscribe, BFT, geo-distribution, green computing, pricing, 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.***