

# COT 5611 Operating Systems Design Principles Spring 2012

Dan C. Marinescu

Office: HEC 304

Office hours: M-Wd 5:00-6:00 PM

# Lecture 5 – Wednesday January 25

- Reading assignment: the class notes “Distributed systems-basic concepts” available online.
- Last time
  - Names and fundamental abstractions
  - Parallel systems
    - The speedup
    - Parallelism
      - Bit-level parallelism
      - Instruction-level parallelism
      - Data parallelism
      - Task-parallelism
    - Parallel architectures: SISD, SIMD, MIMD
  - Storage systems
    - Atomicity
    - Why it is hard to implement atomicity

# Today

- Distributed systems
  - Middleware:
    - Transparency (Access, Location, Concurrency, Replication, Failure, Performance, Scaling).
  - Motivating example □ molecular dynamics computation
  - Communication in distributed systems
    - Abstractions: process, thread, communication channel
    - The state of a process
    - Events: internal, communication
    - Process history
    - Space time diagrams
    - Global state