

# Review for Midterm Exam

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- Date: 2010-03-10, Wednesday
- Time: 11:30AM ~ 12:20PM
- Location: WMC3210
  
- Closed book exam.
- But, you are allowed to bring one page of cheat sheet.

# Topics to be Covered (1)

- Transaction management
  - Transaction
    - The concept of transaction
    - ACID properties of transactions
    - States of transactions
  - Recovery
    - Failure models
    - Logging: undo, redo, undo/redo, checkpointing

# Topics to be Covered (2)

- **Concurrency control**
  - **Concepts: serial, serializable, conflict-serializable, recoverable, strict, ACR**
    - Relations among those schedules
  - **Precedence graph**
  - **Locks**
    - 2PL, shared and exclusive locks, compatibility matrix, update locks, locks with multiple granularity
    - Concurrency control by validation
  - **Deadlock**
    - Methods to detect/prevent deadlocks

# Topics to be Covered (3)

- Data Storage and Query Answering
  - The memory hierarchy
  - Disks
    - Concepts: sector, cylinder, track, block
    - Disk latency
    - Disk scheduling algorithms: elevator, FCFS
    - Buffering
    - Disk failure and RAID
  - **Indexing structure**
    - **Dense/sparse index, multiple-level index**
    - **B+-tree**
    - **Hashing table**