CSE 344: Topics for Final
Pre-Midterm Material

- SQL
  - FWGHOS
  - Nesting
- Datalog
- NoSQL/SQL++
- Relational Algebra
Post-Midterm Material

- Physical Plans/Cost Estimation/Indexing
  - Join/Selection Algorithms
  - Clustered/Unclustered Indexes
- Parallel DB/MapReduce
- Design
  - Table Creation
  - Design Theory
  - Weak Entities
- Transactions
  - Serializable/Conflict Serializable
  - Locking
  - Guarantees
Physical Plans/Cost Estimation/Indexing

- Single Node Joins
  - Nested Loop Joins (Tuple, Block, Block-Nested)
  - Hash Join
  - Sort-Merge Join
- Selectivity Factor
- Indexed Selection and Join
  - Clustered
  - Unclustered
- General Hardware Semantics
  - Disk
  - Main Memory
Parallel DB/MapReduce

- Shared-Nothing Architecture
- Intra-Operator Parallelism
- Shuffling and Broadcasting for Grouping and Joining
- MapReduce Framework
  - Map tasks
  - Reduce tasks
- Recovery in MapReduce and Spark
Design

- Table Creation
- Relationships
  - 1-1
  - N-1
  - N-N
- Subclassing
- Weak Entities
- Design Theory
  - Functional Dependencies
  - Closures
  - BCNF
Transactions

- **Serializable/Conflict Serializable**
  - Precedence Graphs
  - Conflicts (RW, WR, WW)

- **Locking**
  - 2PL/Strict 2PL
  - Deadlock

- **Guarantees**
  - READ UNCOMMITTED
  - READ COMMITTED
  - REPEATABLE READ
  - SERIALIZABLE
  - Phantom Problem
General Advice

Make a note sheet! It’s a good way to study.

Lots of practice materials linked in last quarter’s website.