# CS270 – Final review

Exam 1 material
- Number Representation

Exam 2 material
- Von Neumann model

Technology trends
- Growth trends for processors and memory
- Bandwidth vs latency
- Future growth strategies

Caches / memory hierarchy
- Relative speeds and costs of different memory technologies
- Locality
- Cache miss types
- Write-through / write-back
- Replacement policies
- Inclusive / exclusive caches
- Definitions:
    Block
    Associativity
    Tag
    Dirty Bit
- Worksheet problems

Combinational Logic
- Transistor types
- Transistor based logic (AND, OR, NOR, etc.)
- Boolean Algebra
- Demorgan's Law
- Truth table to combinational logic
- Combinational logic to truth table
- Decoder, Adder, Multiplexer

Sequential logic / FSM
- Storage Elements
    R-S latch
- Registers / memory
- State diagrams
- Create FSM circuit from state diagram
- Create state diagram from FSM circuit
- Mealy vs Moore

Microarchitecture and Register Transfer Notation
- Wires and busses

- Storage elements
    memory, registers
- Fetching an instruction
- Data path components
    Global bus, memory, ALU, register file, PC, PCMUX, MAR, MARMUX, condition code logic, control unit