# Lecture Summaries

## l3

\* \*\*CPU Scheduling:\*\* The short-term scheduler selects a ready process for CPU allocation, transitioning it from the Ready to Running state. This occurs when a process changes state (running to waiting, running to ready, waiting to ready, or terminates).  
  
\* \*\*Preemptive vs. Non-preemptive:\*\* Preemptive scheduling forcefully removes a running process (state transitions 2 & 3), while non-preemptive scheduling allows a process to retain the CPU until it voluntarily releases it (transitions 1 & 4).  
  
\* \*\*Scheduling Criteria:\*\* Algorithms are evaluated based on CPU utilization, throughput, turnaround time, waiting time, and response time. These criteria differ in importance for batch, interactive, and real-time systems.  
  
\* \*\*Batch System Goals:\*\* Maximize job completion per unit time, minimize submission-to-termination time, and maintain high CPU utilization.  
  
\* \*\*Interactive System Goals:\*\* Prioritize quick response times, minimize waiting times, and meet user expectations.  
  
\* \*\*Scheduling Algorithms:\*\* The lecture covers First-Come, First-Served (FCFS), Shortest Job First (SJF), Shortest Remaining Time First (SRTF), and various algorithms for interactive systems (Round-robin, Priority, etc.).  
  
\* \*\*FCFS:\*\* A simple, non-preemptive algorithm where processes are served in arrival order. Prone to long waiting times for shorter processes.  
  
\* \*\*SJF/SRTF:\*\* SJF is a non-preemptive algorithm that schedules the shortest job first, minimizing turnaround time. SRTF is its preemptive counterpart, scheduling the job with the shortest remaining time. Both can lead to starvation of longer processes.