

# CS-701 Lecture 25

May 8, 2001

## Environment Variables

- No distinction between shell variables and environment variables for qsh.
- Definition
  - Setenv Name = Value
  - Example:  
PATH = /usr/bin:~/bin:.
- Reference using \$
  - Not necessarily just at the beginning of a token
  - (Nor even an entire token when at the beginning ...)
- Must be used to generate the third argument to *execve()*.

# Asynchronous Commands

- **Syntax**
  - & at end of command
- **Implementation**
  - Shell issues prompt for next command without waiting for child process to finish.
  - But must avoid “zombies.”
  - Must return exit status to user.
  - May be handled by calling *waitpid()* just before issuing prompts.
    - *waitpid()* can be coded so it doesn’t block (WNOHANG)
- **Full Job Control Management**
  - See Chapters 9 and 10 in Stevens