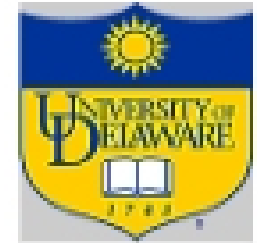




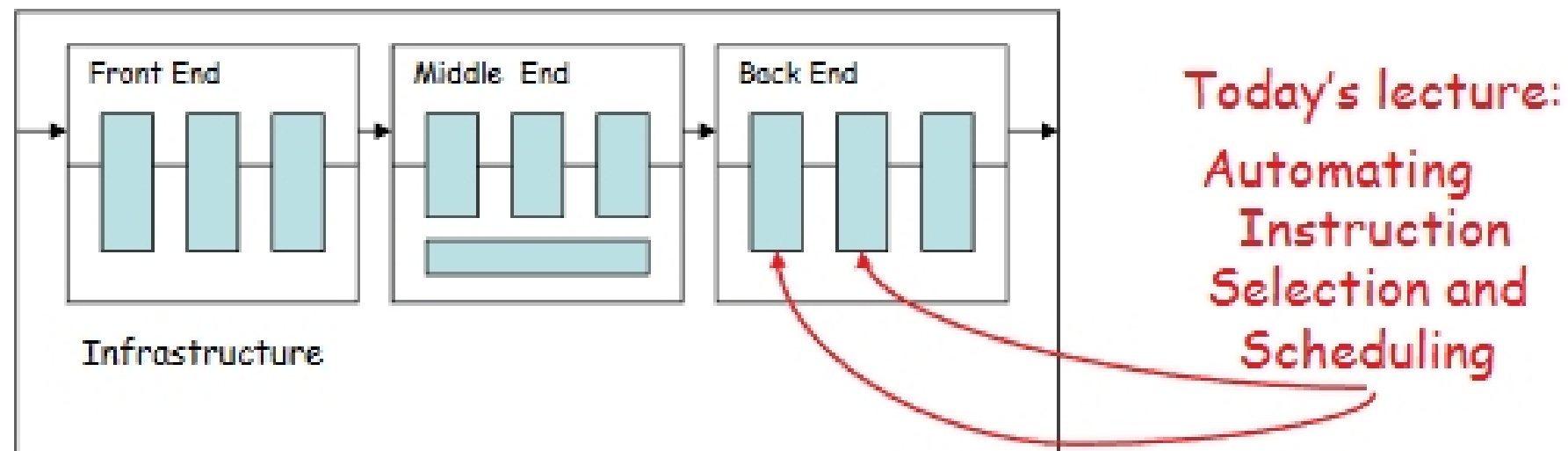
Instruction Selection and Scheduling



The Problem

Writing a compiler is a lot of work

- Would like to reuse components whenever possible
- Would like to automate construction of components



- Front end construction is largely automated
- Middle is largely hand crafted
- (Parts of) back end can be automated



Definitions

Instruction selection

- Mapping *IR* into assembly code
- Assumes a fixed storage mapping & code shape
- Combining operations, using address modes

Instruction scheduling

- Reordering operations to hide latencies
- Assumes a fixed program (*set of operations*)
- Changes demand for registers

Register allocation

- Deciding which values will reside in registers
- Changes the storage mapping, may add false sharing
- Concerns about placement of data & memory operations