

- Intermediate Code Generation
 - Intermediate Representations
 - Symbol Table Design
- Runtime Storage Layout
 - Representation of scalars, arrays, objects
 - Memory areas: static, stack, heap
- Calling Conventions
 - Caller vs. Callee
 - What things must be taken care of on call and return
 - Layout of stack frame
- Parameter Passing Modes
 - Call-by-value
 - Call-by-reference
 - Call-by-name
- Object Representation
 - Data Layout
 - Inheritance
 - Method invocation with inheritance (vtables)
- Code Generation for other Language Constructs
 - if-then-else
 - Loops
 - Arrays - new, length, assignment, access
- Target Code Generation
 - Register Allocation
 - Stack Frame Layout
 - Instruction Selection
- Interpreters
 - Compilers vs. Interpreters
 - Pros and Cons
 - Implementation Needs
- Optimization
 - Scopes of Optimization: peephole, local, global, interprocedural
 - Examples of each
- Runtime Systems
 - What functions can be handled by runtime systems
 - Why needed?
- Miscellaneous (light understanding only)
 - Decompiling, obfuscation
 - Syntax-directed editing
 - Compiling for multicore
 - Attribute grammars