

Programming Principles: DayByDay topics Fall 99
(Comp 110: lecture is 75 minutes; lab is 3 hours per week)

1. Intro, goals, non-goals
Programming, problem Solving, left/right brain
2. Algorithms, notation
Breakouts, reuse, equivalence, "growing" Pay
3. Types, forms, Structured Programming
The Choice form; int, real, bool, Str: Charge
4. Syntax, bnf, syntax diagrams, syntax boxes
Nests of Choices, testing, proving equivalence
5. Loops
Trace tables, repeat form, invariance: Loan
6. Data flow paradigm
Data flow diagrams; Re-use, int & real flows: Changer
7. Logical data flows
Expressions, bool type, casts & mix types: Play Ball
8. Design with loops
Top down design, nested loops: Sine, expo, Calendar
9. State oriented programming
States & transitions: Dispenser
10. Exam1
11. Packaging; methods
Functions and Routines, and reUse: Big Maxes
12. Data Spaces
Slots, Passing parameters, String Class, Hero, OutRow
13. Many methods interconnected
Boolean functions, Pay Class, 2D plots

14. OOP: Classes and Objects
Defining Classes: Account, Name, Employee
15. Creating Classes
Time, Complex Numbers, Date
16. Big data
Files, terminators, access (public, private):Stats
17. Arrays
Mean, Max, Chair inventory
18. Sorting
Many ways: Select, Swap, Insert, Count
19. Two-Dimensional arrays
Creating 2D array as a class; Review, ISBN
20. Exam 2
21. Java
Layout, declarations, types, details
22. Choices in Java
if, else, else if, "dangling else", nests, no switch
23. Loops in Java
While, do loop, for, and converting the Repeat
24. Methods in Java
Functions and Routines
25. Classes in Java
26. Arrays in Java
27. Review
28. Final Exam