Final Exam Review CS 1428 Spring 2018 Jill Seaman	
 Exam Format 100 Points total 50 points: 25 multiple choice and T/F (scantron form) 50 points: writing code on the test paper code segments, functions, and find and fix the error Tasks: Tracing code (what is the output, etc.) Finding errors in code Evaluating C++ expressions Demonstrate general knowledge about C++ and programming Programming (writing code) 	• 1.1-3 • 5.1-12 • 2.1-17 (except 2.11) • 6.1-5, 7-10, and 13 • 3.1-10 • 7.1-3, 5, and 7 • 4.1-15 (except 4.13) • 11.2-8

Ch 1: Intro to Computer and Programming

- Definitions: Computer, Program, Programmer
- Hardware vs Software
- Hardware components: (cpu, main memory, secondary storage, input and output devices)
- Program vs. Algorithm
- Programming languages: machine lang vs low level lang vs high level lang
- Compilation: source code file -> executable
- Execution

Ch 3: Expressions and I/O

5

- cin and >> (input)
- Numerical Expressions: precedence rules
 - Operators: +, -, *, /, % (modulus)
- Type Conversions: implicit and explicit
- Integer division vs float division
- Multiple/combined assignment
- Pow(a,b) and other Math library functions
- Formatted output: setw, setprecision, fixed
- Inputting strings: >> vs getline

Ch 2: Introduction to C++

- cout and << (output)
- Literals: numbers, characters, strings
- Identifiers, rules for valid names
- Variable Definitions and Initialization
- Assignment Statements
- Data Types
 - int, short, long, float, double, bool, char, string
- Scope rules, comments, named constants

Ch 4: Making Decisions

- Relational and Logical Expressions
 - ▶ Rel. Operators: < <= > >= == !=
 - Logical Operators: ! && ||
- Decision statements:
 - if and if-else
 - nested if statements and if-else if
 - block or compound statement
 - ▶ switch
- Scope of variables in blocks

8

6

Ch 5: Loops and file i/o

- increment/decrement operators (x++, x--)
- while loop (general purpose)
- do-while (body done at least once)
- for loop (init; test; update)
- · Which loops are good for which situations
- Count controlled, sentinel controlled loops
- Keeping a running total, input validation
- Sentinel controlled loops
- Nested loops, infinite loops
- File I/O: filestream objects, reading/writing

Ch 6: Functions

- Function definition (implementation in code)
- Function call (void vs one that returns a value)
- Function prototype, when it is required
- Function parameters and arguments
- · Passing arguments by value and by reference
- Return statement
- Returning values from functions
- Scope: variables, local vs global, lifetime

Ch 7: Arrays

- Array declaration/definition, size is constant
- Array elements, syntax, range of subscripts
- Array initialization: int list[] = {6,7,8};
- Processing arrays
 - input, output, sum, average, finding max, min
 - counting values that pass a test, array assignment (copy)

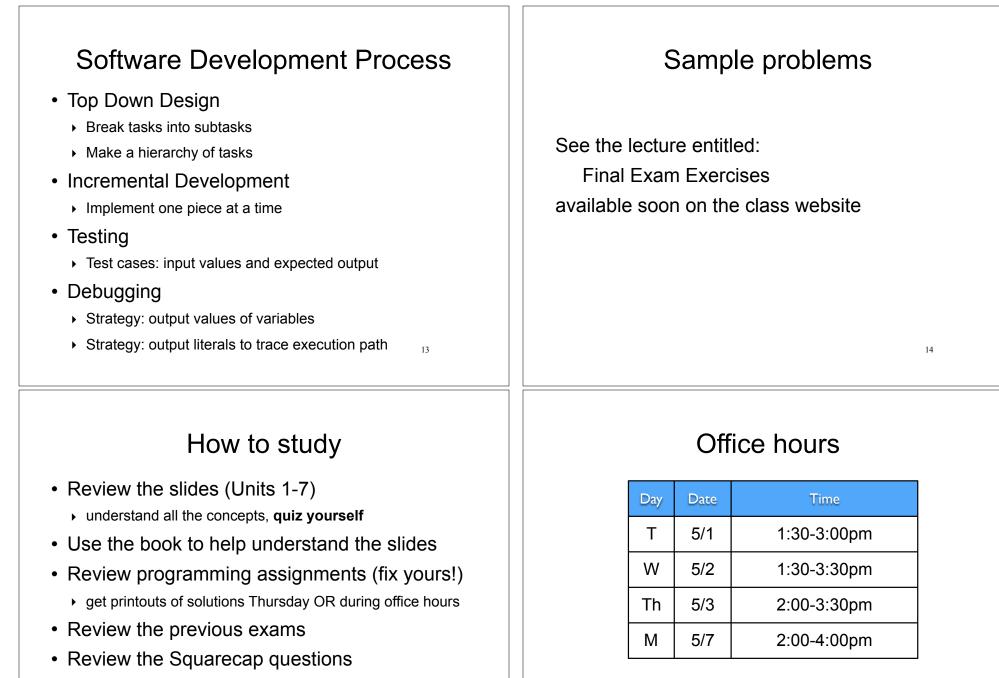
11

- Lack of bounds checking
- Functions and arrays

Ch 11: Structures

- Structure Definition (with members)
- Declaring structure variables (of struct type)
- Struct var initialization: student s1={"Bob",3.2};
- Accessing members (dot operator)
- Operations over structures
 - assignment, function call
 - input/output, comparison (define yourself)
- · Arrays of structure, processing them
- Nested structures
- Structures and functions

10



- Do the Final Exam Review Exercises (slides)
- Practice, practice, practice! Write code! Sleep!

*and by appointment

16