

CSCI 200 - Fall 2023

Foundational Programming Concepts & Design

Schedule

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Modules

ADS: Algorithms and Data Structures

C++: C++ Programming

CLI: Command Line Interface

DE: Design Elements

MM: Memory Management

OOP: Object-Oriented Programming

Resources

Required

- **zyBooks**

Recommended

- **C++ for Python Programmers**
- **C++ Made Easy**

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
M	Aug 21 2023	00	C++	Python vs. C++	Slides (.pdf)	Lab0 assigned A0 assigned
T	Aug 22 2023					A0 due
W	Aug 23 2023	01	C++ CLI	Imperative Programming: Compiling Hello World	Slides (.pdf) Lecture Example Code zyBooks 1.1 - 1.18, 12.13 cpp4py: 1.1 - 1.4	

RMP-H

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
					cppme: Basics of C++	
F	Aug 25 2023	02	C++ MM	Imperative Programming: Variables, Memory, and Random Values Handout (.pdf)	Slides (.pdf) Lecture Example Code zyBooks 2.1 - 2.21, 2.23, 4.16, 4.30 A Tutorial On Two's Complement cpp4py: 2.1 - 2.4 cppme: Typecasting cppme: Modulus cppme: Random Values	Lab1A assigned
M	Aug 28 2023	03	CLI	The Command Line Interface and Makefiles I: Compiler Directives & Targets	Slides (.pdf) Lecture Example Code CLI Cheat Sheet (.pdf) Makefile Cheat Sheet	
W	Aug 30 2023	04	C++ DE MM	Structured Programming: Conditionals & Scope Handout (.pdf)	Slides (.pdf) Lecture Example Code zyBooks 3.1 - 3.14, 3.16 - 3.24 cpp4py: 3.1 cppme: if	Lab1B assigned A1 assigned

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
					cppme: switch	
F	Sep 01 2023	05	C++ DE MM	Structured Programming: Loops & Scope Handout (.pdf)	Slides (.pdf) zyBooks 4.1 - 4.5, 4.8 - 4.15, 4.17 - 4.29 cpp4py: 3.2 - 3.3 cppme: Loops	
M	Sep 04 2023	--- NO CLASS --- LABOR DAY ---				
W	Sep 06 2023	06	C++ CLI	Debugging: Print Lines v The Debugger	Slides (.pdf) Lecture Example Code Debugger Cheat Sheet (.pdf)	
R	Sep 07 2023					
						Set1 due A1 Lab1A Lab1B zyBooks 1
F	Sep 08 2023	07	C++ DE MM	Procedural Programming: Functions by Value Quiz 1: Imperative & Structured Programming	Slides (.pdf) Lecture Example Code zyBooks 5.1 - 5.4, 5.6 - 5.7, 5.9 - 5.12, 9.7 cpp4py: 4.1, 4.4	Lab2A assigned

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
					cppme: Functions	
M	Sep 11 2023	08	C++ CLI DE	Abstraction & Reuseability: Multifile Programs & Makefiles II	Slides (.pdf) Lecture Example Code zyBooks 5.5, 9.14	
W	Sep 13 2023	09	C++ MM	Scope on the Call Stack: Introducing Pointers	Slides (.pdf) Lecture Example Code Pointers Video (27:58) Pointers Slides (.pdf) zyBooks 5.8, 5.13, 7.1, 7.10 - 7.13 cpp4py: 2.5 cppme: Pointers	Lab2B assigned
F	Sep 15 2023	10	C++ DE MM	Procedural Programming: Functions by Pointer	Slides (.pdf)	Lab2C assigned A2 assigned
M	Sep 18 2023	11	C++ CLI DE MM	Exam I Review Quiz 2: Procedural Programming	Slides (.pdf) Exam 1 LOs Exam 1 Extra Credit Questions	

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
W	Sep 20 2023	12	C++ CLI DE MM	Exam I		
F	Sep 22 2023	13	C++ MM OOP	Object-Oriented Programming: Encapsulating State	Slides (.pdf) zyBooks 9.1 - 9.2, 9.5 cppme: Classes	
M	Sep 25 2023	14	C++ DE OOP	File Input & Validation	Slides (.pdf) Lecture Example Code zyBooks 3.15, 4.6 - 4.7, 8.1 - 8.3 cpp4py: 6.1 - 6.7 cppme: File I/O	
T	Sep 26 2023					Set2 due A2 Lab2A Lab2B Lab2C zyBooks 2
W	Sep 27 2023	15	C++ DE OOP	File Output & Formatting	Slides (.pdf) Lecture Example Code zyBooks 2.22, 8.4, 8.8 - 8.19 cppme: iomanip	Lab3A assigned

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
F	Sep 29 2023	16	ADS C++ DE MM OOP	Collections & Big-O Notation: <code>std::vector</code> & <code>std::string</code>	Slides (.pdf) Lecture Example Code zyBooks 2.13, 8.5 - 8.7, 6.14, 6.24 cpp4py: 5.3 - 5.4	Lab3B assigned
M	Oct 02 2023	17	C++ DE MM OOP	Object-Oriented Programming: Constructors & Access Modifiers	Slides (.pdf) Lecture Example Code zyBooks 9.3 - 9.4, 9.6, 9.8 - 9.13	A3 assigned
W	Oct 04 2023	18	C++ DE MM OOP	Procedural + Object-Oriented Programming: Passing Objects to Functions	Slides (.pdf) Lecture Example Code zyBooks 9.15 - 9.24	FP Proposal assigned
F	Oct 06 2023	19	C++ DE MM OOP	Procedural + Object-Oriented Programming: Returning Objects from Functions via the Free Store	Slides (.pdf) Lecture Example Code	
M	Oct 09 2023	20	C++ DE MM OOP	The Effects of <code>const</code> Quiz 3: File I/O & Collections I	Slides (.pdf) Pointers and <code>const</code> cppme: <code>const</code>	
T	Oct 10 2023					Set3 due A3 Lab3A Lab3B zyBooks 3

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
W	Oct 11 2023	21	C++ MM OOP	Reference v Pointing	Slides (.pdf) zyBooks 13.5	FP Proposal due
F	Oct 13 2023	22	C++ DE MM OOP	Object-Oriented Programming: The Big 3 Shallow Copy v Deep Copy	Slides (.pdf) zyBooks 5.14 - 5.15, 5.18 - 5.25, 7.2, 13.1 - 13.4, 13.7 - 13.8, 13.11 - 13.15 cpp4py: 4.2 cppme: Function Pointers cppme: Functors cppme: Operator Overloading	Lab4A assigned
M	Oct 16 2023	--- NO CLASS --- FALL BREAK ---				
T	Oct 17 2023	--- NO CLASS --- FALL BREAK ---				
W	Oct 18 2023	23	C++ DE OOP	Object-Oriented Programming: Templates Quiz 4: OOP & Pointers	Slides (.pdf) zyBooks 13.9 - 13.10 cppme: Templates cppme: Templated Functions	Lab4B assigned
F	Oct 20 2023	24	CLI DE OOP	Libraries & SFML	Slides (.pdf) SFML	Lab4C assigned

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
						A4 assigned
M	Oct 23 2023	25	ADS C++ CLI DE MM OOP	Exam II Review	Slides (.pdf) Exam 1 LOs Exam 2 LOs Exam 1 & 2 LOs Exam 2 Extra Credit Questions	
W	Oct 25 2023	26	ADS C++ CLI DE MM OOP	Exam II		
F	Oct 27 2023	27	C++ DE MM OOP	Object-Oriented Programming: Inheritance	Slides (.pdf) Lecture Example Code zyBooks 10.1 - 10.3 cppme: Inheritance cppme: Inheritance II cppme: Object Lifetime	
M	Oct 30 2023	28	C++ DE MM OOP	Inheritance: Compile Time Polymorphism	Slides (.pdf) cppme: Multiple Inheritance	
T	Oct 31 2023					Set4 due A4 Lab4A Lab4B

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
						Lab4C zyBooks 4
W	Nov 01 2023	29	C++ DE MM OOP	Inheritance: Runtime Polymorphism	Slides (.pdf) Lecture Example Code zyBooks 10.4 - 10.16, 13.6	Lab5A assigned
F	Nov 03 2023	30	C++ DE MM OOP	Inheritance: Abstract Classes & Interfaces SOLID Principles I	Slides (.pdf)	A5 assigned
M	Nov 06 2023	31	C++ DE MM OOP	SOLID Principles II: Designing with Abstraction	Slides (.pdf) cppme: Class Design	
W	Nov 08 2023	32	ADS C++ DE MM	Collections: Static Arrays & Big-O Analysis Handout (.pdf)	Slides (.pdf) zyBooks 6.1 - 6.3, 6.6 - 6.11, 12.4 cpp4py: 4.3, 5.1 - 5.2, 6.8 cppme: Arrays cppme: C-Strings cppme: string cppme: Command Line Arguments	
F	Nov 10 2023	33	ADS C++ DE MM	Collections: Abstract List Operations & Dynamic Arrays	Slides (.pdf) zyBooks 7.3 - 7.9	Lab6A assigned

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
M	Nov 13 2023	34	ADS C++ DE MM	Collections: Linked List	Slides (.pdf) zyBooks 7.14 - 7.20, 14.1, 14.6 cppme: Structures cppme: Singly Linked Lists	
T	Nov 14 2023					Set5 due A5 Lab5A zyBooks 5
W	Nov 15 2023	35	C++ DE	Exception Handling Quiz 5: Inheritance	Slides (.pdf) cpp4py: 7.1 cppme: Exceptions	
F	Nov 17 2023	36	ADS C++ DE MM	Collections: Sorting a List Selection / Insertion / Bubble / Merge Sort	Slides (.pdf) zyBooks 6.4, 12.1 - 12.3, 12.8, 12.10 - 12.12	Lab6B assigned
M	Nov 20 2023	37	DE MM	Recursion	Slides (.pdf) zyBooks 5.16 - 5.17, 5.26, 11.1 - 11.16 cppme: Recursion	
W	Nov 22 2023	--- NO CLASS --- THANKSGIVING BREAK ---				

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
R	Nov 23 2023	--- NO CLASS --- THANKSGIVING BREAK ---				
F	Nov 24 2023	--- NO CLASS --- THANKSGIVING BREAK ---				
M	Nov 27 2023	38	ADS C++ DE MM	Searching a List: Linear / Binary Search Iteration v Recursion	Slides (.pdf) zyBooks 6.5, 12.9, 12.15 - 12.19	
W	Nov 29 2023	39	ADS C++ DE MM	Collections: 2D Lists Breadth-First Search v Depth- First Search	Slides (.pdf) zyBooks 6.12 - 6.13, 14.2 - 14.4	Lab6C assigned A6 assigned
F	Dec 01 2023	40	ADS C++ DE MM	Collections: C++ STL - <code>std::vector</code> , <code>std::list</code> , <code>std::stack</code> , <code>std::queue</code>	Slides (.pdf) zyBooks 6.15 - 6.23, 14.7 - 14.9	
M	Dec 04 2023	41	ADS C++ DE MM	Collections: Trees & Graphs Quiz 6: Lists	Slides (.pdf) zyBooks 16.1 - 16.12 cppme: Binary Trees	LabXC assigned AXC assigned
W	Dec 06 2023	42	ADS C++ CLI DE MM OOP	Final Exam Review	Slides (.pdf) Exam 1 LOs Exam 2 LOs Exam 1 & 2 LOs Full Course LOs	

DOW	Date	Lec ##	Mod	Lecture Subject	Reading	Notes
					Final Exam Extra Credit Review Questions	
R	Dec 07 2023	LAST DAY TO SUBMIT ASSIGNMENTS FOR CREDIT				FP due Set6 due A6 Lab6A Lab6B Lab6C zyBooks 6 SetXC due AXC LabXC
M	Dec 11 2023	Final Exam Time: 8:00 AM - 10:00 AM Rooms: Section A (8am Scholten) - BB W280 Section B (9am Scholten) - BB W280 Section F (9am Wang) - BB W210 Section C (10am Paone) - BB W250 Section D (11am Paone) - CK 140 Section E (12pm Scholten) - CK 150				

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