CS 106B Calendar

Monday	Wednesday	Friday
January 7 Course overview The big ideas in CS 106B The C++ language C++ *vs.* Java **Read: Chapter 1**	9 Functions in C++ Call by reference Libraries and interfaces Recursive functions **Read: Chapters 2 and 7**	11 Using the `string` class File streams Class hierarchies **Read: Chapters 3 and 4**
14 Abstract data types Using `Vector` and `Grid` Stacks and queues **Read: Sections 5.1-5.3**	16 `Map`, `Set`, and `Lexicon` The `foreach` macro **Read: Sections 5.4-5.6**	18 Designing classes The `TokenScanner` class **Read: Chapter 6** **Due: HW #1 (Simple C++)**
21 Martin Luther King, Jr. Day Optional film: Dr. King's 1963 speech "I Have A Dream"	23 Procedural recursion The Towers of Hanoi Graphical recursion **Read: Chapter 8**	25 Recursive backtracking Solving a maze **Read: Section 9.1**
28 Backtracking and games The minimax algorithm **Read: Sections 9.2-9.3** **Due: HW #2 (ADTs)**	30 Algorithmic efficiency Big-O notation Sorting algorithms **Read: Chapter 10**	February 1 The C++ memory model Pointers **Read: Chapter 11** **Due: RandomWriter contest**
4 Dynamic allocation **Read: Sections 12.1-12.8** **Due: HW #3 (Recursion)**	6 The `editor.h` interface Midterm exam Tuesday, February 5 3:15 or 7:00 P.M. **Read: Sections 13.1-13.3**	8 Implementing editors **Read: Sections 13.4-13.5**

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February 11 Templates Implementing stacks **Read: Sections 14.1-14.2**	**13** Implementing queues Implementing vectors **Read: Sections 14.3-14.4**	**15** The **StringMap** class The idea of hashing Implementing **HashMap** **Read: Chapter 15**
18 Presidents' Day (no class)	**20** Binary search trees Balanced trees Implementing **Map** **Read: Sections 16.1-16.4** **Due: HW #4 (Boggle)**	**22** Sets in mathematics Implementing sets **Read: Sections 17.1-17.3**
25 Graphs Standard traversals **Read: Sections 18.1-18.4** **Due: Recursion contest**	**27** Overview of Pathfinder Shortest-path algorithms Minimum spanning trees **Read: Sections 18.5-18.6**	**March 1** Inheritance in C++ Defining shape classes **Read: Sections 19.1-19.2**
4 Expression trees Representing expressions **Read: Section 19.3**	**6** Parsing strategies Overview of BASIC **Read: Section 19.4** **Due: HW #5 (Pathfinder)**	**8** C++ in the real world Using the STL The mysteries of **const**
11 Advanced algorithms Google's Page Rank DAWGs and lexicons Heaps and priority queues **Read: Sections 16.5, 18.7**	**13** Strategies for iteration Function pointers Function objects The **<algorithm>** library **Read: Chapter 20**	**15** Further adventures in CS (optional) **Due: HW #6 (BASIC)** **Due: BASIC contest**

Alternate Final Tuesday, March 19 12:15–3:15 P.M.	Regular Final Thursday, March 21 12:15–3:15 P.M.