

CSCI 13200 Section 01 Fall 2020 Course Schedule

It is not strictly necessary to have either of the assigned, optional textbooks in order to pass this course; there are many such books, as well as many free online resources that can be used as outside reference.

- About the first six weeks of the course, approximately, cover the UNIX operating system. The sequence of topics roughly follows the chapters from the optional, recommended UNIX textbook: *Sams Teach Yourself Unix in 24 Hours* by Dave Taylors, unless otherwise noted as 'Course Materials'. We will cover the first ten chapters (hours) of the SAMS book mostly in order before starting the Python portion of the course.
- When we start programming in Perl in Week 7, we will proceed in the order of the topics and chapters from the optional, assigned textbook, *Python for Everybody, Exploring Data Using Python 3* by Charles R. Severance, for each weekly topic.

You will also learn about the concept of open source software to some extent, in part because

1. UNIX is the progenitor of the modern concept of open source software, and
2. the future of software development, lies in open source software.

Week dates	Chapter (Topic)	Activities, Units, Readings and Assignments	Discussions and Assignments Due Dates, all due online
Week 0 Wed. 8/26 – Sun. 8/30	Course Materials, <ul style="list-style-type: none">• (Syllabus)• (Course Materials)• (Technological requirements) <u>Synchronous Zoom meeting:</u> Wednesday 8/26, 7PM - 8:15PM: Course introduction	<ul style="list-style-type: none">• Visit 'Start Here' in the course Blackboard• Read the syllabus• Read the Class Meeting Guidelines for synchronous Zoom meetings• Visit the Department of Computer Science's Linux Lab FAQ website	<ul style="list-style-type: none">• Attend the first synchronous Zoom meeting on Wednesday evening 8/26 7:00PM – 8:15PM• Post any questions you have about the course in the Course Q&A Forum in Discussion Board, or email the instructor• Email the instructor if you have not yet received an account for the Linux Lab

If you need assistance with logging into your account on the Linux Lab, attend one of the scheduled Zoom meetings during Week 1.			
<p>Week 1</p> <p>Mon. 8/31 – Sun. 9/6</p>	<p><i>Sams... Unix in 24 Hours,</i></p> <ul style="list-style-type: none"> • Chapter 1 (Overview) • Chapter 2 (getting started on UNIX) <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> • Monday 8/31, 7PM – 8:15PM: Remote logins into Linux Lab, first Q&A session • Wednesday 9/2, 7PM – 8:15PM: Remote logins into Linux Lab, second Q&A session 	<ul style="list-style-type: none"> • Visit the Introductions Forum • <u>Course Syllabus Quiz</u> • <u>Unit 1: What is UNIX?</u> <ul style="list-style-type: none"> ○ UNIX operating system ○ Terminals, Command Line Interface ○ Command Prompt \$ ○ Logging in and out of UNIX and Linux Lab ○ Remote logins: SSH protocol ○ <code>man</code>, <code>info</code>, and <code>grep</code> • Read or watch the tutorial for remote logins into Linux Lab using <code>ssh</code> • <u>Assignment 1</u>: Login to claim or reclaim your Linux Lab account 	<ul style="list-style-type: none"> • Complete Course Syllabus Quiz due Friday by 11:59PM • First Discussion Board post in Introductions Forum • Discussion Board reply to at least one classmate in Introductions Forum due Sunday by 11:59PM
<p>Week 2</p> <p>Mon. 9/7 – Sun. 9/13</p>	<p>Note: College is closed on Monday 9/7.</p> <p><i>Sams... Unix in 24 Hours,</i></p> <ul style="list-style-type: none"> • Chapter 3 (UNIX file system) • Chapter 4 (Working with files) <p><u>Synchronous Zoom meeting:</u></p> <p>Wednesday 9/9, 7PM – 8:15PM: Lecture on navigation of the Linux Lab</p>	<ul style="list-style-type: none"> • <u>Review Quiz #1</u>: UNIX • <u>Reading #1</u>: <i>The Ubuntu Story</i> • <u>Unit 2</u>: UNIX file system <ul style="list-style-type: none"> ○ UNIX navigation ○ hidden files and environment variables ○ <code>pwd</code>, <code>ls</code>, <code>cd</code>, and <code>echo</code> • <u>Unit 3</u>: Working with files <ul style="list-style-type: none"> ○ File properties and file permissions ○ Long-listing with <code>ls</code> ○ <code>touch</code>, <code>df</code>, and mounting ○ Viewing file contents with <code>cat</code> • <u>Assignment 2</u>: list contents of the <code>cs132</code> course directory; UNIX commands 	<ul style="list-style-type: none"> • Complete Review Quiz #1 due Friday by 11:59PM • Discussion Board post for Reading #1 • Assignment 1: Login to claim or reclaim your Linux Lab account due Sunday by 11:59PM

<p>Week 3</p> <p>Mon. 9/14 – Sun. 9/20</p>	<p>No classes scheduled Friday 9/18 to Sunday 9/20.</p> <p><i>Sams... Unix in 24 Hours,</i> Chapter 6 (Directory and file manipulation) Chapter 10 (Text editing in UNIX)</p> <p><u>Synchronous Zoom Meetings:</u></p> <ul style="list-style-type: none"> Monday 9/14, 7PM – 8:15PM: Directory manipulation practice Wednesday 9/16, 7PM – 8:15PM: Text-editing practice in <code>vi</code> and <code>nano</code> 	<ul style="list-style-type: none"> Review Quiz #2: UNIX file system, file properties Unit 4: Directory and File Manipulation <ul style="list-style-type: none"> <code>mkdir</code>, <code>rmdir</code> I/O shell redirection <code>rm</code>, <code>cp</code>, and <code>mv</code> <code>alias</code> Unit 5: Text-editing in UNIX <ul style="list-style-type: none"> <code>vi</code> and <code>nano</code> Advanced: <code>emacs</code> Graphical editor <code>gedit</code> 	<ul style="list-style-type: none"> Complete Review Quiz #2 due Thursday by 11:59PM Discussion Board reply to at least two classmates for Reading #1 due Sunday by 11:59PM
<p>Week 4</p> <p>Mon. 9/21 – Sun. 9/27</p>	<p>Course Materials, (Bits, bytes, and binary numbers) <i>Sams... Unix in 24 Hours,</i> Chapter 5 (Shell scripting and more)</p> <p><u>Synchronous Zoom Meetings:</u></p> <ul style="list-style-type: none"> Monday 9/21, 7PM – 8:15PM: Binary Numbers lecture & practice Wednesday 9/23, 7PM – 8:15PM: Shell scripting practice 	<ul style="list-style-type: none"> Review Quiz #3: Directory and file manipulation, text-mode editors Reading #2: <i>The Ubuntu Philosophy</i> Unit 6: Binary Numbers <ul style="list-style-type: none"> Bits and bytes Binary numbers and binary addition Octal numbers Unit 7: Shell-scripting and more <ul style="list-style-type: none"> Shell commands and <code>bash</code> Shell scripts introduction and basics <code>test</code> command <code>if</code>, <code>while</code> and <code>for</code> statements <code>chmod</code> <code>umask</code> Assignment 3: bash scripting exercise 1: <code>logincount</code> 	<ul style="list-style-type: none"> Complete Review Quiz #3 due Friday by 11:59PM Discussion Board post for Reading #2 Assignment 2: list contents of the <code>cs132</code> course directory; UNIX commands due Sunday by 11:59PM

<p>Week 5</p> <p>Mon. 9/28 – Sun. 10/4</p>	<p>No classes scheduled Monday 9/28 . Monday schedule of classes on Tuesday 9/29.</p> <p><i>Sams... Unix in 24 Hours,</i> Chapter 7 (Viewing file contents) Chapter 8 (Filters, pipes, and file globs)</p> <p><u>Synchronous Zoom Meetings:</u></p> <ul style="list-style-type: none"> • Tuesday 9/29, 7PM – 8:15PM: Practice viewing file contents • Wednesday 9/30, 7PM – 8:15PM: Practice Filter commands and command pipes 	<ul style="list-style-type: none"> • <u>Review Quiz #4:</u> Binary numbers, shell scripting • <u>Unit 8:</u> Viewing file contents <ul style="list-style-type: none"> ○ cat ○ more and less ○ head and tail ○ diff ○ file • <u>Unit 9:</u> Filters, pipes, and file globs <ul style="list-style-type: none"> ○ Review: I/O redirection ○ Back-tick quotes in bash ○ Pipes ○ Filter commands <ul style="list-style-type: none"> ▪ sort, uniq ▪ fold, cut, and tr ▪ cat and tac ▪ wc • Assignment 4: bash scripting exercise 2: countmatches 	<ul style="list-style-type: none"> • Complete Review Quiz #4 due Friday by 11:59PM • Discussion Board reply to at least two classmates for Reading #2 • Assignment 3: bash scripting exercise 1: logincount due Sunday by 11:59PM
<p>Week 6</p> <p>Mon. 10/5 – Sun. 10/11</p>	<p><i>Sams... Unix in 24 Hours,</i> Chapter 9 (Pattern matching)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> • Monday 10/5, 7PM – 8:15PM: File globs lecture & practice • Wednesday 10/7, 7PM – 8:15PM: Regular expression lecture & practice 	<ul style="list-style-type: none"> • <u>Review Quiz #5:</u> filter commands and pipes • <u>Reading #3:</u> Free Software Movement • <u>Unit 10:</u> Pattern matching <ul style="list-style-type: none"> ○ File globs ○ Regular expression ○ grep, awk, and sed • Assignment 5: bash scripting exercise 3: atomcoordinates 	<ul style="list-style-type: none"> • Complete Quiz #5 due Friday by 11:59PM • Discussion Board post for Reading #3 • Assignment 4: bash scripting exercise 2: countmatches due Sunday by 11:59PM

Week 7	<p>No classes scheduled Monday 10/12. Monday schedule of classes on Wednesday 10/14.</p> <p>Mon. 10/12 – Sun. 10/18</p> <p>Course Materials, <i>Python for Everybody...</i>, Chapter 1 (Programming concepts)</p> <p><i>Python for Everybody...</i>, Chapter 2 (Python basics)</p> <p>Course Materials, (Example program)</p> <p><u>Synchronous Zoom meeting:</u> Wednesday 10/14, 7PM – 8:15PM: Programming language basics lecture, example program practice, & Programming Project overview</p>	<ul style="list-style-type: none"> • Visit Project section on Blackboard <ul style="list-style-type: none"> ◦ Group/Individual Project Survey ◦ Make a post and/or reply in the Reach-Out Forum • Review Quiz #6: Pattern matching • Unit 11: Programming Concepts <ul style="list-style-type: none"> ◦ What is a program? ◦ History of programming ◦ Programming languages ◦ Algorithms and software development • Unit 12: Python Basics <ul style="list-style-type: none"> ◦ Structure ◦ Style ◦ Documentation • Unit 13: The process of program development <ul style="list-style-type: none"> ◦ The interactive <code>mathq</code> program ◦ Problem refinement ◦ Top-down approach ◦ Pseudo-code ◦ Translating pseudo-code into code ◦ Testing ◦ Debugging: advice, tips and tricks • Assignment 6: bash scripting exercise 4: <code>codonhistogram</code> 	<ul style="list-style-type: none"> • Discussion Board post and/or reply in Reach-out Forum for the Programming Project • Complete Review Quiz #6 due Friday by 11:59PM • Discussion Board reply to at least two classmates for Reading #3 • Assignment 5: bash scripting exercise 3: <code>atomcoordinates</code> • Complete Group/Individual Project Survey due Sunday by 11:59PM
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<p>Week 8</p> <p>Mon. 10/19 – Sun. 10/25</p>	<p><i>Python for Everybody...</i>, Chapters 2, 6, 8, and 9 (Data types and variables)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 10/19, 7PM – 8:15PM: Data types, variables and expressions Q&A and practice Wednesday 10/21, 7PM – 8:15PM: Structured variables Q&A and practice 	<ul style="list-style-type: none"> Visit Project section on Blackboard <ul style="list-style-type: none"> Discussion in respective Contract Forum Work on Contract details Review Quiz #7: Programming Concepts, basics Unit 14: Data Types and Variables <ul style="list-style-type: none"> Data types and variables Variable assignment Expressions and operations Arrays, lists, tuples Dictionaries Assignment 7: refine the mathq program 	<ul style="list-style-type: none"> Complete Review Quiz #7 due Friday by 11:59PM Discussion Board post and/or reply in the respective Contract Forum for the Programming Project Submit Contract(s) for Programming Project Assignment 6: bash scripting exercise 4: codonhistogram due Sunday by 11:59PM
<p>Week 9</p> <p>Mon. 10/26 – Sun. 11/1</p>	<p><i>Python for Everybody...</i>, Chapters 2, 3, and 5 (Control structures)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 10/26, 7PM – 8:15PM: Control structures practice, first Q&A session Wednesday 10/28, 7PM – 8:15PM: Control structures practice, second Q&A session 	<ul style="list-style-type: none"> Visit Project section on Blackboard <ul style="list-style-type: none"> Read information for Group/Individual Check-ins Review Quiz #8: Data types and variables Reading #4: <i>Copyleft, permissive and Creative Commons Licenses</i> Unit 15: Control structures <ul style="list-style-type: none"> Control flow Conditional statements Comparative operators, expressions Repetition statements, loops Logic and Lazy Evaluation Assignment 8: the process of program development: simwalk 	<ul style="list-style-type: none"> Submit first check-in(s) for Group/Individual efforts for Programming Project feedback Complete Review Quiz #8 due Friday by 11:59PM Discussion Board post for Reading #4 Assignment 7: refine the mathq program due Sunday by 11:59PM

<p>Week 10</p> <p>Mon. 11/2 – Sun. 11/8</p>	<p>Course Materials, <i>Python for Everybody...</i>, Chapters 6, 7, and 11 (I/O, text processing, and pattern-matching)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 11/2, 7PM – 8:15PM: File I/O programming practice Wednesday 11/4, 7PM – 8:15PM: Text-processing and pattern matching practice 	<ul style="list-style-type: none"> • <u>Review Quiz #9</u>: Control structures and control flow • <u>Unit 16</u>: I/O for programs <ul style="list-style-type: none"> ○ File I/O overview and standards ○ <code>open</code> and <code>close</code> ○ Reading, writing, and modifying files ○ Reading file contents into a program ○ Accessing command line arguments • <u>Unit 17</u>: Text Processing <ul style="list-style-type: none"> ○ String type overview ○ String formatting ○ String pattern matching ○ Regular expressions 	<ul style="list-style-type: none"> • Submit second check-in(s) for Programming Project feedback • Complete Review Quiz #9 <p style="text-align: right;">due Friday by 11:59PM</p> • Discussion Board reply to at least two classmates for Reading #4 • Assignment 8: the process of program development: <code>simwalk</code> <p style="text-align: right;">due Sunday by 11:59PM</p>
<p>Week 11</p> <p>Mon. 11/9 – Sun. 11/15</p>	<p><i>Python for Everybody...</i>, Chapter 4 (Functions and scope)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 11/9, 7PM – 8:15PM: Function practice, first session Wednesday 11/11, 7PM – 8:15PM: Function practice, second session 	<ul style="list-style-type: none"> • <u>Review Quiz #10</u>: I/O in programs, text processing • <u>Reading #5</u>: <i>The Berne Convention</i> • <u>Unit 18</u>: Functions and Scope <ul style="list-style-type: none"> ○ Execution flow and repetitive code ○ Pre-defined functions ○ User-defined functions ○ Function parameters ○ Return values ○ function actions ○ Function placements in a program ○ Function calls ○ Scope in programs: lexical and global ○ Function calls and name conflicts ○ recursion 	<ul style="list-style-type: none"> • Submit third check-in(s) for Programming Project feedback • Complete Review Quiz #10 <p style="text-align: right;">due Friday by 11:59PM</p> • Discussion Board post for Reading #5 <p style="text-align: right;">due Sunday by 11:59PM</p>

<p>Week 12</p> <p>Mon. 11/16 – Sun. 11/22</p>	<p><i>Python for Everybody...</i>, Chapter 10 (Complex Structures)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 11/16, 7PM – 8:15PM: Complex data structure practice, first session Wednesday 11/18, 7PM – 8:15PM: Complex data structure practice, second session 	<ul style="list-style-type: none"> • <u>Review Quiz #11</u>: Functions • <u>Unit 19</u>: Complex Data Structures <ul style="list-style-type: none"> ◦ Interpreting data overview ◦ Matrices and records ◦ List comprehensions ◦ Data structure composition ◦ Nested structures ◦ Tuples and dictionaries ◦ Dispatch tables for interactive programming 	<ul style="list-style-type: none"> • Submit fourth check-in(s) for Programming Project feedback • Complete Review Quiz #11 <p style="text-align: right;">due Friday by 11:59PM</p> • Discussion Board reply to at least two classmates for Reading #5 <p style="text-align: right;">due Sunday by 11:59PM</p>
<p>Week 13</p> <p>Mon. 11/23 – Sun. 11/29</p>	<p>Friday schedule of classes on Wednesday 11/25. College closed Thursday 11/26 to Sunday 11/29.</p> <p>Course Materials, (Documenting Python Programs using comments and docutils)</p> <p><u>Synchronous Zoom meeting:</u> Monday 11/23, 7PM – 8:15PM: Documentation practice</p>	<ul style="list-style-type: none"> • <u>Review Quiz #12</u>: Complex Data structures • <u>Unit 20</u>: Program Documentation <ul style="list-style-type: none"> ◦ Source Documentation ◦ User Documentation ◦ man pages ◦ mark-up languages ◦ docutils and restructuredText • <u>Reading #6</u>: <i>The Definition of Open Source and the public domain</i> 	<ul style="list-style-type: none"> • Submit fifth, final check-ins for Programming Project feedback • Complete Review Quiz #12 <p style="text-align: right;">due Wednesday by 11:59PM</p>

<p>Week 14</p> <p>Mon. 11/30 – Sun. 12/6</p>	<p><i>Python for Everybody...</i>, Chapter 14 (Object-Oriented Programming in Python)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 11/30, 7PM – 8:15PM: Object-oriented programming Q&A and practice Wednesday 12/2, 7PM – 8:15PM: Modules Q&A and practice 	<ul style="list-style-type: none"> <u>Review Quiz #13</u>: Program Documentation <u>Unit 21</u>: Object-oriented Programming and Modules <ul style="list-style-type: none"> What is object-oriented programming? Classes, objects and instances Inheritance Standardization of function libraries Module installation Module documentation Module creation and namespace handling Module libraries online 	<ul style="list-style-type: none"> Discussion Board posting for Reading #6 due Monday by 11:59PM Submit Group/Individual Programming Project Complete Review Quiz #13 due Friday by 11:59PM Discussion Board reply to at least two classmates for Reading #6 due Sunday by 11:59PM
<p>Week 15</p> <p>Mon. 12/7 – Sun. 12/13</p>	<p>Reading Day on Thursday 12/10 and Friday 12/11.</p> <p>Course Materials, (Review)</p> <p><u>Synchronous Zoom meetings:</u></p> <ul style="list-style-type: none"> Monday 12/7, 7PM – 8:15PM: Group/Individual Project Presentations, first session Wednesday 12/9, 7PM – 8:15PM: Group/Individual Project Presentations, second Session; course content review and course closure 	<ul style="list-style-type: none"> Visit the Closure Forum <u>Course feedback survey</u> <u>Review Quiz #14</u>: Modules, Object-Oriented Programming <u>Cumulative Final Exam Practice</u> <ul style="list-style-type: none"> UNIX Bash scripting Programming in Python 	<ul style="list-style-type: none"> Complete Review Quiz #14 due Friday by 11:59PM First Discussion Board posting in Closure Forum Discussion Board reply to at least one classmate in Closure Forum due Wednesday by 11:59PM

Week 16	Final Examinations take place Monday 12/14 to Sunday 12/20.	Final Exam is available to access on the course Blackboard:	<ul style="list-style-type: none">• Complete course feedback survey due Monday by 11:59PM
Mon. 12/14 – Sun. 12/20	End of Fall 2020 Semester is on Sunday 12/20.	Monday 12/14, 6:20PM – 8:20PM	<ul style="list-style-type: none">• Final Exam due Monday 12/14, 8:20PM