CS 2204: UNIX — Course Syllabus

Fall, 2004

### Instructor
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Office Hours: TBA

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Email: cs2204@cs.vt.edu
Office: McBryde 124
Office Hours: TBA

### Course Times and Places

#### Weekly Lecture

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Lecture Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litton-Reaves 1670</td>
<td>9:05am - 9:55am</td>
</tr>
</tbody>
</table>

#### Weekly Lab Session

<table>
<thead>
<tr>
<th>Computer Lab</th>
<th>Section</th>
<th>Lab Session Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>McBryde 124</td>
<td>91431</td>
<td>10-10:50, Thursdays</td>
</tr>
<tr>
<td>McBryde 124</td>
<td>91432</td>
<td>9:05-9:55, Fridays</td>
</tr>
<tr>
<td>McBryde 124</td>
<td>91433</td>
<td>11:00-11:50, Thursdays</td>
</tr>
<tr>
<td>McBryde 124</td>
<td>91434</td>
<td>11:00-11:50, Tuesdays</td>
</tr>
<tr>
<td>McBryde 124</td>
<td>91437</td>
<td>9:05-9:55, Wednesdays</td>
</tr>
</tbody>
</table>

### Description

This course introduces students to the use and administration of a UNIX operating system. The course will emphasize end-user tools and commands for basic file manipulation, editing, compilation, and debugging, as well as special features of the UNIX shell environment. Basic system administration will also be covered. Students will learn through a combination of traditional lectures, hands-on laboratory sessions, and individual assignments.

### Prerequisites

CS Major or Minor: CS 1704 with a grade \( \geq 2.0 \) (C)

ECE Major: ECE 2575 with a grade \( \geq 1.7 \) (C-)

Textbook

REQUIRED


RECOMMENDED


Communication

- Official class announcements are made on the class website

  http://courses.cs.vt.edu/~cs2204/fall2004/

  and through an announcement-only class mailing list. In particular, familiarize yourself with the class website and visit it often.

- Your weekly lab session provides an excellent opportunity for you to ask questions of the teaching assistant and to obtain help with the use of UNIX.

- The instructor and the teaching assistants will try to respond to email queries in a timely fashion. Please use the email addresses above. If your query is of general interest to the class, the reply may be sent out through the mailing list.

- The instructor and the teaching assistants hold office hours that you should make use of when you have questions or concerns.

Grading

Scores for graded work will be posted promptly on Blackboard. Your final grade will be based on your total score out of 1000 points. Points are distributed as follows.

<table>
<thead>
<tr>
<th>Graded Item</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>595</td>
</tr>
<tr>
<td>Attendance</td>
<td>145</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>160</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>1000</strong></td>
</tr>
</tbody>
</table>

It is essential that you attend all of the lectures and all of the labs. In particular, the labs provide you with hands-on experience and assistance from the teaching assistants that are not available at lecture. It is important that you arrive on time to and complete to the best of your ability all of the labs. In particular, material from the labs may be the subject of quiz and exam questions.

Statute of Limitations
Any questions regarding the grading of an assignment, quiz, or exam must be raised within **one week after the score is made available on Blackboard** (not when you pick it up). An announcement on the class web site will document the starting date of the one week period for each score.

**Assignments — 595 Points**

There will be six assignments during the semester that require you to do work in a UNIX environment and submit files to be graded. Each assignment will be worth, on average, about 100 points; actual point value will be included when the assignment is posted on the class web site, about one week before the due date. See the course calendar for due dates. There will be some shell and Perl programming. After we cover the **make** command, each assignment will require the submission of a **Makefile** and test files. To submit your assignment, you will create a **tar** (tape archive) file from your assignment directory, encrypt the **tar** file using public-key cryptography, and leave the encrypted **tar** file in your home directory. Exact submission details will be provided with each assignment.

**No late assignments will be accepted.** Extensions of due dates will be allowed only in the case of documented illness or emergency. Please contact the instructor as soon as possible if you know that you will be unable to complete the assignment by the due date because of illness or emergency.

**Attendance — 145 Points**

Attendance is required at both the 15 lectures and the 14 lab sessions. Attending a lecture is recorded by your signature on a sign-up sheet. Attending a lab session is noted by the teaching assistant, as described below. Attendance is worth 5 points each, for a total of 145 points — 5 * (15 + 14).

**Lab sessions will be held in the UNIX laboratory, McBryde 124.** Each lab lasts 50 minutes, but you are welcome to arrive early and stay later, as long as there is no other class in the lab and the teaching assistant is present. The lab has 30 Linux workstations for the 30 students in each lab section, so it is essential that you attend the lab for which you are enrolled. Lab sessions will generally consist of a brief review of the lecture and a hands-on assignment allowing you to try the concepts, commands, and tools covered in the lecture. Answers that you generate during the assignment must be shown to the teaching assistant before you leave the lab, so that you will receive credit for the lab.

Lab hours and other lab information are posted on the CS lab home page.

**Lab Policies**

It is important that you arrive to each lab session on time. Important information will be given out at the beginning of the labs, including class announcements and review of information that will be covered in the lab for that day. **Students arriving more than 10 minutes late for lab will not get credit for attendance.**

If you are unable to attend your lab during a particular week, send email to cs2204@cs.vt.edu with the reason you cannot attend and requesting a change in lab. The teaching assistants will grant such a change only if your reason is acceptable and there is capacity in McBryde 124 to accommodate your request. **There will be no makeup labs.** If the teaching assistants are unable to grant you the change, then you should do the lab remotely, but you will get no credit for it.

**Quizzes — 100 Points**

There will be five quizzes during the semester, each worth 20 points. See the course calendar for dates. Quizzes will be taken through the VT Blackboard system. Quizzes are due on Friday, and the password to take the quizzes will be given out during lecture on the previous Monday. Later in the week, on Wednesday or Thursday, the password will be emailed to the entire class, as a reminder to take the quiz. **Quizzes will be due by 5pm on that Friday.**
Quizzes will consist of twenty multiple-choice, multiple-answer questions. **You will have 25 minutes to complete each quiz.** The quizzes will be open-book, open-notes, but with only 25 minutes to complete 20 questions, studying ahead of time is highly recommended.

**No late quizzes will be accepted.** Extensions of quiz due dates will be allowed only in the case of documented illness or emergency. Please contact the instructor as soon as possible if you know that you will be unable to complete the quiz in time due to illness or emergency. Since a quiz can be taken online, being out of town is **not** an excuse for missing it.

**Final Exam — 160 Points; Thursday, December 16, 1:05pm - 3:05pm**

The final exam will consist of 40 multiple-choice questions. It will be cumulative, testing your knowledge of the material covered throughout the semester in the lecture, labs, and assignments. The last lecture will be a review for the final exam.

**Course Topics**

This table maps the weeks in the semester to the topics covered that week. View it as a guide, not as an absolute schedule.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 23-27</td>
<td>Introduction to UNIX; Shells; Commands</td>
</tr>
<tr>
<td>2</td>
<td>August 30-September 3</td>
<td>UNIX Filesystem</td>
</tr>
<tr>
<td>3</td>
<td>September 6-10</td>
<td>Text Editing; <em>vi</em> and <em>vi</em> IMproved (<em>vim</em>)</td>
</tr>
<tr>
<td>4</td>
<td>September 13-17</td>
<td>Input/Output Redirection; Regular Expressions</td>
</tr>
<tr>
<td>5</td>
<td>September 20-24</td>
<td>UNIX Windowing Systems</td>
</tr>
<tr>
<td>6</td>
<td>September 27-October 1</td>
<td>UNIX Shells; The bash Shell</td>
</tr>
<tr>
<td>7</td>
<td>October 4-8</td>
<td>Shell Scripting; Programming for bash</td>
</tr>
<tr>
<td>8</td>
<td>October 11-15</td>
<td>Introduction to Perl</td>
</tr>
<tr>
<td>9</td>
<td>October 18-22</td>
<td>A Bit More Perl</td>
</tr>
<tr>
<td>10</td>
<td>October 25-29</td>
<td>Software Development: The <em>make</em> Command</td>
</tr>
<tr>
<td>11</td>
<td>November 1-5</td>
<td>Software Development: Revision Control and Debuggers</td>
</tr>
<tr>
<td>12</td>
<td>November 8-12</td>
<td>Software Development: Programmed File I/O; Pipes</td>
</tr>
<tr>
<td>13</td>
<td>November 15-19</td>
<td>Processes: <em>forks</em>, <em>execs</em>, <em>waits</em>, <em>signals</em>, and <em>pipes</em></td>
</tr>
<tr>
<td>14</td>
<td>November 29-December 3</td>
<td>Basic UNIX System Administration</td>
</tr>
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Additional Information

The Honor Code

In the past, a large number of students have been sent to the honor court for violations, and, in almost every case, the student was found guilty. An exhaustive list of honor code violations would be impossible to present here, but in the context of this course, each of the following is a flagrant violation of the Virginia Tech honor code, and violators will be sent to honor court.

- Working with another student or other students to derive a common program or solution for an assignment. There are no group projects in this course.
- Discussing the details required to solve an assignment except as explicitly stated. You may not share solutions.
- Copying source code (programs) or other solutions in whole or in part from or to someone else.
- Copying or reading files from another student's disk or account, even though the files might be unprotected.
- Editing (computer generated) output to achieve apparently correct results.
- Taking another person's printout from a lab printer, remote printer, or trash can.
- Always give credit for work that is not entirely your own. The only cases where this is applicable is for parts of programs or other work borrowed from 1.) the instructor or the teaching assistants, 2.) a textbook or reference book, or 3) web sites.
- You may NOT search online or elsewhere for an already completed solution with or without a reference.

It is acceptable to discuss with classmates an assignment in a general way, i.e., you may discuss with your classmates the goal of an assignment but not how to achieve that goal. In no way should the individual statements of a program or the steps leading to the solution of the problem be discussed with or shown to anyone except the instructor and the teaching assistants. On the other hand, you are encouraged to discuss the assignment and your program or solution specifically with the instructor and the teaching assistants.

If you have any question as to how the honor code applies to this class, remember that:

- Any work done in this class must be done on an individual basis.
- Credit will be given only for work done entirely on an individual basis.
- Do not make any assumptions as to who can provide help on a programming assignment. Only the instructors and the teaching assistants may assist you on any assignment.
- Giving unauthorized help to another student is equivalent to getting unauthorized help.
- Homework assignments are subject to scrutiny by a system (or systems) that measure(s) software similarity (cheating validation).
- Evidence indicating the violation of the policy stated above will be turned in directly to the honor court.
• It is much easier to explain a poor grade to parents or a potential employer than to explain an honor court conviction.

• No grade is worth your integrity.

The honor code will be strictly enforced in this course. All assignments will be considered pledged graded work, unless otherwise noted. All aspects of your work will be covered by the honor System. Honesty in your academic work will develop into professional integrity. The faculty and students of Virginia Tech will not tolerate any form of academic dishonesty.

Every assignment in this course in any form carries an implied signature on the following pledge:

On my honor:

- I have not discussed my homework solution or program code with anyone other than my instructor assigned to this course.

- I have not used homework solutions or UNIX code obtained from another student, or any other unauthorized source, either modified or unmodified.

- If any UNIX code or documentation used in my homework submission was obtained from another source, such as a text book or course notes, that has been clearly noted with a proper citation in the comments of my program.

- I have not designed this program or submission in such a way as to defeat or interfere with the normal operation network services and/or the method by which assignments are fetched.

Special Needs

If you have any special needs or circumstances (e.g., religious holidays that will cause you to miss class), please contact the instructor at least one week before the event in question.

If any student needs special accommodations because of a disability, please contact the instructor during the first week of class. This includes special accommodations for the final exam. The university has many options for accommodation, including quiet testing facilities, enlarged print exams, etc., however, these arrangements have to be made well in advance.