

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ more CSC_course.txt
TH 2212 - Calculus of One Variable II 4 Credit Hours
• (unless taken in either Area A or D)
Required courses
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• CSC 1301 - Principles of Computer Science I 4 Credit Hours
• CSC 1302 - Principles of Computer Science II 4 Credit Hours
•
• CSC 2510 - Theoretical Foundations of Computer Science 3 Credit Hours
• MATH 2420 - Discrete Mathematics 3 Credit Hours
Elective Courses
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Select from the following to complete 18 hours in Area F
• ACCT 2101 - Principles of Accounting I 3 Credit Hours
• ACCT 2102 - Principles of Accounting II 3 Credit Hours
• ASTR 1010K - Astronomy of the Solar System 4 Credit Hours
• ASTR 1020K - Stellar and Galactic Astronomy 4 Credit Hours
• BIOL 1103K - Introductory Biology I 4 Credit Hours
• BIOL 1104K - Introductory Biology II 4 Credit Hours
•
• BIOL 2107 - Principles of Biology I 3 Credit Hours
and
• BIOL 2107L - Principles of Biology I Laboratory 1 Credit Hours
•
• BIOL 2108 - Principles of Biology II 3.000 Credit Hours
and
• BIOL 2108L - Principles of Biology II 3.000 Laboratory 1 Credit Hours
•
• CHEM 1211K - Principles of Chemistry I 4 Credit Hours
• CHEM 1212K - Principles of Chemistry II 4 Credit Hours
1. [zboyle1@gsuad.gsu.edu@snowball ~]$
```

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep 'CSC 320' CSC_course.txt
CSC 320 C Progamming
• CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
2. CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
```

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep -i 'CSC 320' CSC_course.txt
CSC 320 C Progamming
csc 320 c programming
• CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
3. CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
```

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep 'CSC 3' CSC_course.txt
    CSC 3450 - C programming
    CSC 320 C Programming
•    CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
```

4. Finds lines containing 'CSC 3' and prints them

5. 

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep 'CSC 3|CSC 1' CSC_course.txt
```

Looks for lines containing 'CSC 3|CSC 1', since there are none nothing was printed

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep -E 'CSC 3|CSC 1' CSC_course.txt
•    CSC 1301 - Principles of Computer Science I 4 Credit Hours
•    CSC 1302 - Principles of Computer Science II 4 Credit Hours
    CSC 3450 - C programming
    CSC 320 C Programming
    CSC 100 Computer Introduction
•    CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
```

6. Finds lines containing either 'CSC 3' or 'CSC 1' and prints them

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ egrep 'CSC 3|CSC 1' CSC_course.txt
•    CSC 1301 - Principles of Computer Science I 4 Credit Hours
•    CSC 1302 - Principles of Computer Science II 4 Credit Hours
    CSC 3450 - C programming
    CSC 320 C Programming
    CSC 100 Computer Introduction
•    CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
```

7. Finds lines containing either 'CSC 3' or 'CSC 1' and prints them

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ fgrep '3.000 Credit Hours' CSC_course.txt
•    BIOL 2108 - Principles of Biology II 3.000 Credit Hours
```

8. Finds and prints lines containing '3.000 Credit Hours'

9. `[zboyle1@gsuad.gsu.edu@snowball ~]$ fgrep -x '3.000 Credit Hours' CSC_course.txt`

Looks for a line with only 3.000 Credit Hours, there is none so nothing is printed

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep 'CSC.*Programming' CSC_course.txt
For CSC 2302 - Python Programming
    CSC 4930 - C++ Programming Series
    CSC 223 Database Programming Introdcution
•    CSC 2301 - Introduction to Python Programming 3 Credit Hours
•    CSC 2302 - Python Programming for Data Science 3 Credit Hours
•    CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
10. CSC 3330 - Programming Language Concepts 4 Credit Hours
```

Finds and prints lines with 'CSC' and 'Programming' with any character zero or more times between them

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep '^CSC.*Programming' CSC_course.txt
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
11. CSC 3330 - Programming Language Concepts 4 Credit Hours
```

Finds and prints lines with 'CSC' and 'Programming' with any character zero or more times between them at the beginning

12. `[zboyle1@gsuad.gsu.edu@snowball ~]$ grep --color 'CSC[^3]*3{2}' CSC_course.txt`

No result since it treats {} as character literals

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ egrep --color -w 'CSC[^3]*3{2}[^3]*' CSC_course.txt
CSC 3320 - System-Level Programming 3 Credit Hours
13. CSC 3325 - Operating Systems 4 Credit Hours
```

Finds and prints lines containing 'CSC' and all characters except 3 zero or more times then by 3 two times and ending in any character except three zero or more times  
It prints only the lines containing the exact pattern

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ grep 'CSC.*C++' CSC_course.txt
    CSC 4930 - C++ Programming Series
```

14. Finds and prints lines containing 'CSC' and any character any number of times, followed by 'C++'

```
[zboyle1@gsuad.gsu.edu@snowball ~]$ egrep 'CSC.*C\+\+' CSC_course.txt
    CSC 4930 - C++ Programming Series
```

15. Finds and prints lines containing 'CSC' and any character any number of times, followed by 'C++'
16. Causes an error because the two greedy characters next to each other