C291 – System Programming in C and UNIX

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Syllabus: [Topic (weeks)]
Variables, Data types and arithmetic expressions – loops – decision – Arrays – Strings – functions – Structures – Preprocessors - Bitwise operations – I/O operations - Pointers

Topics:
Data type, unsigned & signed, Variable scope, Arithmetic operations – write C in UNIX, debug, Frequently used UNIX commands to program C- For, do, While – ifelse, switch – single dimension, multi dimension – string operations – functions, arguments, command line arguments, variable scope, recursive functions – working with multiple files - structures - #define, #include, # statements – Bitwise And, OR, Left shift, Right shift – character, formatted, files operations – Dynamic memory allocation, pointers, pointers and functions, pointers and arrays, pointers and structures

Assignments:
Basics:
1. Looping based
2. Array based
3. String based
4. Function based (make use of 2 & 3)
5. Recursion (make use of 2 & 3)

Complex:
6. Modular programming
7. Structure based (bonus points for modular programming)
8. I/O operations (bonus points for structures & modular programming)
9. Pointers (bonus points for modular programming)
10. Bonus assignment (combination of 6,7 & 9 or 6,7 & 8)

References:
Programming in C – Kochan
C Programming Language – Kernighan, Brain W. & Ritchie, Dennis
System Programming with C and Unix – Adam Hoover