New Beginnings

Practice Module I (Summer 2018)

Tuesdays and Thursdays

10:30AM-2:30M

# Goals

1. Introduce students to the fundamental concepts of computing.
   1. Problem solving, the design of algorithms for solutions, and the translation of tested algorithms into the grammar of a high-level computer language.
2. Introduce data types, variables, conditionals, loops, functions, arrays, pointers, dynamic memory, linear linked lists, recursion, and multi-dimensional arrays
3. Introduce data abstraction and building implementations of abstract data types(ADT).
   1. Abstractions include lists of several types, stacks, queues, trees, binary trees, B-trees and graphs. Recursion and key transformation (hashing) are examined.

# Texts

*A Book on C*, Fourth Edition by Al Kelly and Ira Pohl, 1997 [as low as $13.00 + shipping on Amazon (used)]

# Daily Schedule

10:30-12:20 Lecture

12:20-13:00 Break

13:00-14:30 Lecture/Lab

# Grading

This is a Pass/No Pass class. At the end of the term, your programming proficiency exam will determine if we recommend for you to move forward to the Fall Term of New Beginnings.

**Calendar**

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| DATE | TOPICS | NOTES |
| July 3 (Tuesday) | Orientation – programming tools  What’s a computer and how do I program one? | SSH, Linux, vi Johnniac |
| July 5 (Thursday) | C syntax, Data Types and Control Flow | KP Chap 2, 3 & 4 |
| July 10 (Tuesday) | Data Types, Control Flow and Functions | KP Chap 3, 4 & 5 |
| July 12 (Thursday) | Arrays and Strings | KP Chap 6 |
| July 17 (Tuesday) | Pointers and Dynamic Memory | KP Chap 6 |
| July 19 (Thursday) | Structures and Unions | KP Chap 9 |
| July 24 (Tuesday) | Structures and Lists | KP Chap 10 |
| July 26 (Thursday) | More Structures and List Processing (lists) | KP Chap 10 |
| July 31 (Tuesday) | I/O and Arrays of Structs | KP Chap 11 |
| August 2 (Thursday) | More Structures and List Processing (trees) | KP Chap 10 |
| August 7 (Tuesday) | **Proficiency Demonstration** |  |
| August 9 (Thursday) | Structures & List Processing – stacks & queues | KP Chap 10 |
| August 14 (Tuesday) | Trees | KP Chap 10 |
| August 16 (Thursday) | Searching and Sorting | KP Sections 6.7, 6.9, 8.5, 8.15 |
| August 21 (Tuesday) | Object Oriented Programming and C++ | http://preview.tinyurl.com/ycgsvojd |
| August 23 (Thursday) | Project Work – FAB 88-03 |  |
| August 28 (Tuesday) | C++ | KP Chap 13 |
| August 30 (Thursday) | C++ |  |
| September 4 (Tuesday) | Other Paradigms – Logic Programming | KP Chap 13 |
| September 6 (Thursday) | Other Paradigms – Logic Programming | KP Chap 13 |
| September 11 (Tuesday) |  |  |
| September 13 (Thursday) | Final Proficiency Demonstration (10:15-12:05) |  |