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| **1. Course title/number, number of credit hours** | | |
| Data Structure/Algorithm Analysis/COP3530-002 CRN **11130** | | # of credit hours  3 |
| **2. Course prerequisites, corequisites, and where the course fits in the program of study** | | |
| MAD2104, COP3014, COP3014L | | |
| **3. Course logistics** | | |
| *Term*: Spring 2016  *Class location and time:*  Fleming Hall Boca 401  *W& 11:00* am - 12:20pm | | |
| **4. Instructor contact information** | | |
| *Instructor’s name*  *Office address*  *Office Hours*  *Contact telephone number*  *Email address* | Feng-Hao Liu  EE 529  Wed: 1:00PM-3:00PM  561-297-2341  fenghao.liu@fau.edu | |
| **5. TA contact information** | | |
| *TA’s name*  *Office address*  *Office Hours*  *Contact telephone number*  *Email address* | TBA | |
| **6. Course description** | | |
| The design, implementation and run-time analysis of important data structures and algorithms. The data structures considered include sorted arrays, linked lists, trees and hash tables. An approach based on abstract data types will be emphasized. Programming assignments will be implemented in the C++ language. | | |
| **7. Course objectives/student learning outcomes/program outcomes** | | | |
| *Course objectives* | The course will provide a good understanding of Abstract Data Types, commonly used data structures such as stack, list, queue, tree, and hash tables, and their implementation in C++. The student will also learn good programming principles and proper use of the C++ language. The material learned in this course is fundamental for the computer science and computer engineering programs. The programming assignments will provide valuable experience with programming in C++, designing classes, implementation, testing and debugging. | | |
| *Student learning outcomes*  *& relationship to ABET a-k objectives* | a. Correctness of code.  b. Clarity of code and program structure.  c. Space and time efficiency of code  d. Demonstrates ability to choose and implement data structures. | | |
| **8. Course evaluation method** | | | |
| Homework - 60 %  Midterm - 20 %  Final - 20 % | | *Note*: The minimum grade required to pass the course is C. | |
| **9. Course grading scale** | | | |
| Grading Scale:  90 and above: “A”, 87-89: “A-“, 83-86: “B+”, 80-82: “B”, 77-79 : “B-“, 73-76: “C+”, 70-72: “C”, 67-69: “C-“, 63-66: “D+”, 60-62: “D”, 51-59: “D-“, 50 and below: “F.” | | | |
| **10. Policy on makeup tests, late work, and incompletes** | | | |
| No makeup tests will be given, except with documentation from a Doctor. Late assignments will only be accepted and graded, if excused by me. Blackboard will allow you to submit an assignment after the due date and time. However, Blackboard will mark a late assignment late. Incomplete grades will only be given if the student is passing the class and has proper documentation for the reason of the incomplete. | | | |
| **11. Special course requirements** | | | |
| None. | | | |
| **12. Classroom etiquette policy** | | | |
| University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions. | | | |
| **13. Disability policy statement** | | | |
| In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures. | | | |
| **14. Honor code policy** | | | |
| Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at  [www.fau.edu/regulations/chapter4/4.001\_Code\_of\_Academic\_Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf) | | | |
| **15. Required texts/reading** | | | |
| Larry Nyhoff, ADT, Data Structures and Problem Solving with C++, Pearson Prentice Hall, 2005 | | | |
| **16. Supplementary/recommended readings** | | | |
| None | | | |
| **17. Course Topics:** | | | |
| * 1. Principles of Programming   2. Review of C++ concepts   3. Recursion (fundamentals)   4. Data abstraction: Abstract Data Types, C and C++ classes   5. Linked lists: singly-linked, circular, dummy header, doubly-linked   6. Pointers and dynamic allocation   7. Stacks: Stack ADT, various implementations, applications   8. Queues: Queue ADT, various implementations, applications   9. C++ Classes   10. Inheritance and Object-oriented Design   11. Virtual functions (optional)   12. Template classes   13. Operator overloading   14. Algorithm efficiency: growth rates and big-O notation   15. Sorting: comparison of various algorithms   16. Trees: Binary Tree ADT, binary search tree ADT, implementation and   applications   * 1. Graph ADT, implementation, DFS, BFS. (optional)   2. Hash Table ADT   3. Priority Queue ADT, heaps, heap-sort (optional) | | | |