CSCI 497 **PrOSC Programming Method** Spring 2013

Programmer Optimized Source Code Programming Method

Class Time: Tuesday, 4:30pm to 7:10pm Location: JOUR 104

Instructor: Dr. Daniel Creider Office: JOUR 216 Phone: 886-5407
Office hours: MTWF 9:00am to 11:00am. Other times by appointment.
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Creating code that executes efficiently is in demand in all fields of programming. You must learn how to rethink the process of the implementation of an algorithm into a programming language rather than spending time making the code efficient after it has been written. The purpose of this programming method is to eliminate unnecessary memory, eliminate unnecessary executable statements, eliminate redundant operations, and make other modification, which may be unique to a specific algorithm, to improve the speed of the program and reduce memory requirements. This method of programming cannot be duplicated by an optimizing compiler. A compiler cannot modify the coded algorithm. It can only make what is written more efficient. A compiler cannot eliminate a termination test for a loop control and it cannot identify redundant operations. This course is ***guaranteed to improve your programming skills*** (if you do the assignments) and make you more valuable to an employer.

Prerequisites to this course – C/C++ programming and Data structures (CSCI270)

Student Learning Outcomes:

- Develop alternative algorithms for programming problems
- Learn techniques to implement algorithms efficiently in a programming language
- Compare efficient implementation and typical implementation of algorithms

Student Learning Outcomes will be determined by the completion of assignments and your performance on the two exams.

Possible Algorithms to be discussed in class

- sequential search
- removing duplicates
- frequency count
- frequency distribution
- computing arithmetic mode(s)
- huge number calculation
- efficient methods of comparing data sets
- efficient set operations (union, intersection, symmetric difference)
- '*efficient*' node vs *dummy* node in linked list
- NFABLL (non-fragmented array based linked list) – ***new data structure***
- Other topics including but not limited to modified insertion sort and tag sorting

No textbook is required – use any reference materials you wish. Handouts will be given in class.

Software: Visual Studio.net or Dev C++ available in JOUR 101/102

Grading: Your grade will be based on the following:

2 Exams (70% of grade)

Exams will be based on assignments

Midterm	30%
Final	40%

All exams will be given on the computers in the lab which will require you to create part of a program using the MS Visual C++ or Bloodshed compiler. The final exam will be comprehensive. *After you have completed the exams, you will be required to take your exam, correct all errors and resubmit it before it will be graded.* ***Corrected exams not accepted and not graded if submitted after due date!***

12-15 Weekly programming assignments (20% of grade)
Each assignment will have a specific due date. Assignments will be uploaded to a computer specified by the graduate assistant for this class. Assignments are due at class time on the due date. **No assignments will be accepted after the due date unless you have permission from the instructor.**

12-15 Weekly algorithm assignments (10% of grade)
Each week a specific problem for the next class will be assigned for you to briefly describe several possible algorithms to solve that problem. No logic diagrams will be required but will have to be able to describe several algorithms in enough detail so that the solution in understandable. You may be randomly picked to describe your solutions to the class.

Attendance: All students are expected to attend class regularly according to the graduate catalog. Students who miss five (5) classes will have their grade reduced by one letter grade. If you arrive to class 5 or more minutes late you will be considered absent.

Weekly assignments will be graded on a 5 point scale

5 - program gets the correct results with my data and is well documented and code is efficient
4 - program gets the correct results most of the time with my data and is well documented
3 - program gets the correct results most of the time with my data but is not well documented
2 - program gets some correct results
1 - program gets no correct results
0 - will not compile, will not execute, or code has nothing to do with the assignment
For weekly assignments not turned in on time the following applies – NO GRADE

You are expected to attend class and do your own work on exams and computer assignments. Copying another student's work is not acceptable. ***Any indication of copying on an exam will be an automatic F for the courses for all students involved. NO SECOND CHANGES. Copying on a quiz or lab assignment will result in a reduction of the final grade by one letter grade for all students involved.***

Letter grades will be assigned according to the following scale:

A - at least 90% of the total points
B - at least 80% of the total points
C - at least 70% of the total points
D - at least 60% of the total points
F - less than 60% of the total points

Students can meet with the instructor during regularly scheduled office hours for help with course material, evaluation of course performance, and suggestions for improvement in academic performance.

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Student's Guide Handbook, Policies and Procedures, Conduct)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact: Office of Student Disability Resources and Services, Gee Library, Room 132, (903) 886-5150 or (903) 886-5835 phone, (903) 468-8148 fax,
Email: StudentDisabilityServices@tamu-commerce.edu.