College of Computing and Software Engineering
Department of Computer Science

CS 3305L/01- Data Structures Lab
Fall 2018

SYLLABUS

FACULTY AND COURSE INFORMATION

Selena He
Associate Professor
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Home page: http://ksuweb.kennesaw.edu/~she4/2018Fall/cs3305
Office: J-338
Office Hours: T, Th 1:00 p.m. – 3:00 p.m. and by appointment

Class Location and Meeting Times: 9:30am – 10:45am, T, R, J-251

Required Texts or Technology Resources -

Data Structures and Other Objects Using C++ 4th Edition
Michael Main and Walter Savitch
Addison Wesley
ISBN#: 978-0-13-212948-0

References:

C++ for Java programmers

- http://pages.cs.wisc.edu/~cs368-2/CppTutorial/
- http://www.cprogramming.com/java/c-and-c++-for-java-programmers.html
- http://www.horstmann.com/ccj2/ccjapp3.html
- http://cs.brown.edu/courses/cs123/docs/java_to_cpp.shtml

C++ for C# programmers

- http://www.bobtacoindustries.com/Content/Devs/CsToCppASomewhatShortGuide.pdf
- https://msdn.microsoft.com/en-us/library/yyaad03b%28v=vs.90%29.aspx
- https://en.wikibooks.org/wiki/C%2B%2B_Programming/Programming_Languages/Comparisons/C_Sharp

Teaching/Lab Assistant:

Jetta Koves akoves@students.kennesaw.edu

COURSE DESCRIPTION, CREDIT HOURS, AND PREREQUISITES

CS 3305L- Data Structures Lab
1 Laboratory Hours 1 Credit Hours
Prerequisite: MATH 2345, CS 1302

This course introduces data structures, specification, application, and implementation. The case studies will illustrate how data structures are used in computing applications. The emphasis of the course is on linear and some nonlinear data structures and object oriented principles. Topics include: abstract data types, stacks, queues, lists, binary search trees, priority queues, recursion, algorithm efficiency, trees, heaps, hash tables, and analysis of search and sort algorithms and their performance for implementation and manipulation. The programming language to be used in this course is any standard high-level object-oriented programming language such as C++, Java, and Ada.

This course will use C++ as the implementation language. CodeLite will be the supported development environment and gnu compiler will be the required compiler. This compiler is native to Linux and there are versions available for Windows and Macs.

COURSE LEARNING OUTCOMES

Students will be able to:

1. Implement the classical data structures in a contemporary programming language
2. Write programs in a contemporary program language which use the classical data structures. Understand data structure concepts

TEACHING PHILOSOPHY AND INSTRUCTION METHODS

I like the fun saying about education: "Education is what is left when one forgot all he or she has learned". It is true that education is the process of shaping the way of thinking. My teaching philosophy is simply "teaching is always not enough". During the teaching, I feel that, in this exploding information age, there are just too many things there and it is impossible to include all of them in my class. Balancing the teaching materials is an art. My idea is not to over stuff the students but to teach them to learn how, where and what to learn. Teaching is to build the "fishing skill" of the students rather than simply feeding the students with the "fish".

COURSE CONTENT AND REQUIREMENTS/GRADING SCALE

Course Topics and Outline

- Introduction to C++
- Linear data structures & STL
- Trees
- Graphs
- Maps/hash tables

Final Exam: 12/04/2018 10:30am – 12:30pm

Week	Lecture Topic	Lab Topic	Reference
1	HelloWorld	Set up the programming environment	Ch 1
2	OOP in C++	Create objects in C++	Ch 2
3	Container	Bag class modification	Ch 3
4	Dynamic bag	Dynamic bag improvements	Ch 4
5	LinkList	Linklist lab	Ch 5

6	Bag with LinkList	Bag with LinkList lab	Ch 5
7	Review, test 1		
8	Bag with template	Bag with template lab	Ch 6
9	Stack and Queue	Deque lab	Ch 7 & 8
10	Recursion	Recursion lab	Ch 9
10	BinaryTree	BinaryTree lab	Ch 10
11	Review, test 2		
12	Binary Search Tree	Write and test programs with binary search trees	Ch 10
13	Heaps and BTrees	Write and test programs with Heap	Ch 11
14	Hashing and Sorting	Write and test programs with Hash table	Ch 12 & 13
15	Review, Final Exam		As per Semester Schedule

Disclaimer: This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

Grading Scale and Course Policies

Homework, quizzes, project, and exams will be given numerical scores. These scores will be averaged at the end of the semester using the following weighting:

Assignment	Points, percentage or measurement
13 lab assignments	**100%**

Lab Assignment Submission: each lab assignment is required to be accomplished in the corresponding lab session. No late submission is accepted. *Lab results must be checked by TA before submitting to D2L.* No late submission is accepted.

Letter grades will be determined by ranking the numerical averages of all students in the class. Cut-off points for grades will depend on the performance of the class as a whole; however, they will be no higher than 90 (A), 80 (B), 70 (C), and 60 (D).

Your final weight average will be used to determine your final letter grade using the table below:

A: 90% and above
B: 80% thru 89%
C: 70% thru 79%
D: 60% thru 69%

F: less than 60%

Course Policies:

Feedback in a Timely Manner: The instructor will ONLY reply to e-mails that are sent using D2L email system. Please allow your instructor 24-48 hours before replying back to your email.

Attendance Policy: Regular attendance is expected; please notify me in advance if you will be unable to attend because of business travel or other valid reason. If a student misses 2 or more than 2 classes, the student's final grade may be decreased.

Electronic Devices and Classroom Behavior Policy: In order to minimize the level of distraction, all beepers and cellular phones must be on quiet mode during class meeting times. Students who wish to use a computer/PDA for note taking need prior approval of the instructor since key clicks and other noises can distract other students. Recording of lectures by any method requires prior approval of the instructor. Students using a laptop in class should not check their email, browse the web, or in other way detract from the focus of the class.

Students are reminded to conduct themselves in accordance with the Student Code of Conduct (KSU Student Code of Conduct, Section III), as published in the Undergraduate and Graduate Catalogs. Every KSU student is responsible for upholding the provision. Students who are in violation of KSU policy will be asked to leave the classroom and may be subject to disciplinary action by the University.

Tutoring:
The College of Computing and Software Engineering offers some tutoring services for certain courses. If this applies to your course, you may want to include this resource for your students. Tutoring info can be found here: http://ccse.kennesaw.edu/ccselabs/ccse-tutoring.php.

COURSE WITHDRAWAL

The last day to withdraw without academic penalty is **October 3, 2018**.

Students may withdraw from one or more courses up to one week prior to the last day of class. Summer withdrawal dates vary according to the part of term in which the student is enrolled. As of fall 2004, students will be allowed a maximum of eight total withdrawals if they enter KSU as a freshman. Transfer students will be allowed one withdrawal per fifteen credit hours attempted, for a maximum of eight. Students who choose to pursue a second degree at KSU will be allowed two additional withdrawals and consult with the Registrar's Office. Students who entered KSU before fall 2004 will be allowed one withdrawal per fifteen credit hours attempted for a maximum of eight after the institution of this policy. As part of the consolidation process between Kennesaw State University and Southern Polytechnic State University, SPSU students will have eight withdrawals available beginning Fall Semester 2015.

Students who exceed the maximum number of withdrawals will receive a grade of 'WF' for any subsequent withdrawals. To completely or partially withdraw from classes at KSU, a student must withdraw online through Owl Express.
Students who officially withdraw from courses before the last day to withdraw without academic penalty will receive a grade of 'W' and receive no credit. Students who officially withdraw after the last day to withdraw without academic penalty and before the last week of classes during the semester or who have exceeded the maximum number of withdrawals will receive a grade of 'WF,' which will be counted as an 'F' in the calculation of their grade point average.
The only exceptions to these withdrawal regulations will be for instances involving unusual circumstances, which must be fully documented. Students may appeal to the Academic Standing Committee for consideration of unusual circumstances. Exact withdrawal dates are published in the official academic calendar. Students will receive refunds only when they withdraw from ALL their classes and only by the schedule outlined in the University System refund policy.

Assistance Outside of Class

You may seek assistance outside of class from the instructor.

When you seek help it is important that you bring the necessary materials with you so that we can effectively advise you. If you are seeking help with classroom work bring your text and your classroom notes. If you are seeking help with pencil and paper exercises bring your text, your classroom notes, and whatever attempts you have made with the exercises.

If you are seeking help with a program make sure you bring a diskette or flash drive with the most current versions of all *.java files. Bring paper listings of these files. If you were getting error messages, record them as accurately as you can.

Again, bring your most current versions of your work. The ability to help you is GREATLY reduced without the current versions.

Student Course Evaluation

A standard questionnaire (described below) will be administered during the last two weeks of the semester in all classes. Additional questions developed by the college or instructor(s) may be included as well. It is important that each student provide meaningful feedback to the instructor(s) so that changes can be made in the course to continually improve its effectiveness. We value student feedback about the course, our teaching styles, and course materials, so as to improve our teaching and your learning. At a minimum, the following two questions will be asked: 1) Identify the aspects of the course that most contributed to your learning (include examples of specific materials, exercises and/or the faculty member's approach to teaching and mentoring), and 2) Identify the aspects of the course, if any, that might be improved (include examples of specific materials, exercises and/or the faculty member's approach to teaching and mentoring).

Acquiring Final Grades

In an effort to better utilize our technology resources, Kennesaw State University has instituted the reporting of end of term grades by phone. This is in addition to the web version of grades, which has been in effect for several terms. Students may call 770-420-4315 and select Option Number 4 to secure their end of term grades. With this new development, printed grade reports will not be mailed at the end of the term. Students needing verification of grades or enrollment should request either an official transcript or an enrollment verification through the Office of the Registrar.

ACADEMIC INTEGRITY

Every KSU student is responsible for upholding all provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. The Code of Conduct includes the following:

- Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.
- Students involved in off-campus activities shall not act in a disorderly or disruptive fashion, nor shall they conduct any dangerous activity.
- Students involved in off-campus activities shall not take, damage or destroy or attempt to take, damage or destroy property of another.

Frequently students will be provided with "take-home" exams or exercises. It is the student's responsibility to ensure they fully understand to what extent they may collaborate or discuss content with other students. No exam work may be performed with the assistance of others or outside material unless specifically instructed as permissible. If an exam or assignment is designated "no outside assistance" this includes, but is not limited to, peers, books, publications, the Internet and the WWW. If a student is instructed to provide citations for sources, proper use of citation support is expected.
Additional information can be found at the following locations:

- http://www.apa.org/journals/webref.html

- http://bailiwick.lib.uiowa.edu/journalism/cite.html
- http://www.indiana.edu/~wts/wts/plagiarism.html
- http://www.virtualsalt.com/antiplag.htm

ADDITIONAL STUDENT RESOURCES

For CCSE Student resources:
http://ccse.kennesaw.edu/student-resources.php

KSU Service Desk:
The KSU Service Desk is your portal to getting assistance or access to University IT Services. Students call: 470-578-3555 or email studenthelpdesk@kennesaw.edu

For Academic Advising information and to schedule appointments:
http://ccse.kennesaw.edu/advising/index.php

Links to frequently used and helpful services:
http://www.kennesaw.edu/myksu/