## CSCD 300 Data Structures

**CLASS INFORMATION**

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| **Class Meeting Time**  **and Location** | 9:00am – 9:50am, Mon. Tue. Thu. and Fri. at CEB 107. Wednesdays at CEB 208 for lab sessions. |
| **Instructor** | Yun Tian (Tony) |
| **Instructor Office** | CEB 304 |
| **Instructor Office Hours** | Monday, Tuesday, Thursday, Friday 10:00am - 10:50am at CEB 304. |
| **Instructor Email** | ytian@ewu.edu |
| **Instructor Phone** | 509.359.6162 |
| **TA’s Office Hour** | **Tuesday** from 10am to 11am at CEB 202.  **Thursday** from 12pm to 1pm at CEB 202.  For each day that you **physically** consult the TA in CEB202, you get one bonus point that will be added to the sum of your homework scores. For any grading errors, please contact the TA first. |
| **TA’s Email** | wtadlock@ewu.edu |

**COURSE DESCRIPTION**

This course covers fundamental abstract concepts of data structures as well as their implementation in a programming language. Topics include linked lists, stacks, queues, hashing, recursion, complexity analysis of algorithms, binary search trees. Programming projects with formal documentation are required.

**TEXTBOOK**

* ***Data Structures and Algorithms in Java***, by Peter Drake, ISBN 9780131469143,

(Optional)

**COURSE WEBSITE**

EWU Canvas for CSCD300-01

All materials, notes and announcements are posted on Course Website. You should turn in your assignments and labs through EWU canvas.

**COMMUNICATION AND EMAIL**

During weekdays, I could reply your email within 24 hours since the time your email arrives in my email box. If you send an email to me on weekends, it takes longer for me to respond. Sometimes, if it is hard to answer your question through an email, I will simply request you to come to my office during my office hour. I prefer that you physically show up in my office to discuss your questions. I cannot discuss complicated questions via emails.

Please do not send me message through the Canvas inbox, I usually will not respond your message through Canvas online web interface. Please send me emails using your EWU email account, otherwise your emails will go to my junk email folder.

**TOPICS**

A tentative sequence of topics that we will cover this quarter,

|  |
| --- |
| Review singly-linked list with/without dummy node |
| Sort linked list using insertion/selection sort algorithms |
| Circular and Doubly Linked List |
| Recursion |
| Growth Rate Function and algorithm analysis, Big O notation |
| Exam 1 |
| Stacks and its applications in infix expressions |
| Queue and its applications in merge sort on linked list |
| merge sort or quick sort |
| Hashing and Hashtable |
| Binary Trees - basic concepts and implementations |
| pre-order, in-order and post-order traversal of a tree |
| Binary Search Trees |
| Exam 2 |
| Final Exam to be announced |

**GRADING**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **% of Final Grade** | | **Total** |
| Exam 1 | 22.5% | | 1 |
| Exam 2 \* | 22.5% | | 1 |
| Final Exam | 22.5% | | 1 |
| Homework | 45% | |  |
| Quiz | 10% | |  |
| **Attendance** | | **0%** | |

|  |  |
| --- | --- |
| 94% - 100% | A |
| 90% - 93% | A- |
| 87% - 89% | B+ |
| 84% - 86% | B |
| 80% - 83% | B- |
| 75% - 79% | C+ |
| 72% - 74% | C |
| 68% - 71% | C- |
| 65% - 67% | D+ |
| 62% - 64% | D |
| 58% - 61% | D- |
| Below 58% | F |

**The** **passing grade for this class is a C+ or better**, in order for you to move forward in your study.

When calculating the final grades, the instructor will choose **the best two grades** among those three exams: Exam 1, Exam 2 and the Final Exam.

The total weighted percentage point is calculated using this equation: AverageExamScore \* 45% + AverageHomeworkScore \* 45% + AverageQuizScore \* 10%.

The instructor retains the right to increase grades above this formula, which is to your benefit.

**GENERAL POLICIES**

**Americans with Disabilities Act:** Students requiring accommodations need to contact Disability Support Services (DSS) at (509) 359-6871. The DSS Office is located in TAW 125. DSS accommodations are only given to exams, but not to homework or assignments, because the allotted time for homework assignments has taken into account the needs of special students.

***Exams and Quizzes*:** No makeup exams/quizzes will be given without prior arrangements having been made or in the case of a DOCUMENTED emergency after the fact. Exam dates will always be given at least several days before they occur, and review session or review notes will be given prior to each exam.

***Homework*:** Homework assignments will be in the form of written and/or programming projects. They are due ***BY THE REQUIRED TIME***. Thereafter, they WILL NOT be accepted. So please DO NOT ask for extension except documented or extreme cases.

Since the instructor will not post on website the solutions to the projects or assignments, if you like to know the best answer to the assignment problems, please **talk** to the instructor. The instructor can show you the solutions to these questions personally in office.

If you take this class, by default, you expect and agree that all assessments (including quizzes, assignments and exams) will be graded and published within **one week** (7 days) after the assessments are due.

***Professional Behavior*:** You are expected to act in accordance with the department's [Code of Professional Conduct for Students](http://access.ewu.edu/Computer-Science/Code-of-Ethics.xml). This means cheating will not be tolerated. If you ever receive aid on an assignment, be sure you document where the aid came from. Students who copy another's program/work **WILL** be subject to severe disciplinary action, which **WILL** include a course grade of F and a written statement in his/her permanent record.

***EWU Academic Policy/Cheating Policy*:** You are allowed to discuss your thoughts with and help other classmates; however, you must do your own work, meaning ALL work should be your own. Plagiarism and cheating **WILL NOT BE TOLERATED**. Plagiarism includes using someone else' programs or parts of programs as your own; copying another person’s work; handing in another person’s work for your own. If you work with someone else to understand the content, it is important that each person does the assignment separately. Should any of your work be duplicated from another person or any other source, you will be asked to leave the class and not return. Your final grade will be a F. Any infractions will be handled in accordance with the academic integrity policy of Eastern Washington University and Washington State civil law. The best way for you to learn programming is to apply it to your own work.

**See Plagiarism/cheating. (WAC 132J-125-200)**

**Long version:**

1. Any student who, for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall commit plagiarism or otherwise knowingly tender any work product that the student falsely represents to the faculty as the student's work product, in whole or in part, shall be subject to discipline.
2. Any student, who knowingly aids or abets the accomplishment of cheating, as defined in subsection (1) of this section, shall also be subject to discipline.

**Short Version**: You do it - you fail.

It’s not just a good idea, IT’S THE LAW!

***Incompletes*:** Incompletes are subject to this restriction: "PASSING work/progress must be demonstrated (you must have a C+ or greater) through *three* weeks prior to the end of the term." Incompletes must be requested prior to finals week. Incompletes will not be granted without mitigating circumstances. (Dissatisfaction with your grade is NOT a mitigating circumstance!)

***Lectures*:** Classroom activities will complement, not necessarily duplicate, the text. All posted lecture notes cannot substitute for your own notes taking in classroom. Furthermore, you are accountable for materials covered in class, so you **miss class at your own risk**. Your instructor will NOT teach the topics more than once in the lectures that a student skipped without acceptable excuses. Your instructor frequently checks the class attendance. Examples given in class should be confirmed by the students to guarantee complete understanding of the subject.

***Participation and Attendance***. You are not graded on participation and attendance directly.  However, at quarter's end these items can positively influence your final grade.

***Cell Phone Policy*:**You are expected to turn your ringer off during class time. If you need to take a phone call, please take the conversation outside of the classroom. If your cell phone goes off during class, the instructor has the right to answer your phone.

***Rules About Seeking Help with Debugging:***

I **cannot** help you debug your homework, project or assignments. Generally, I cannot check line-by-line your homework program to debug for you. Debugging code is one part of programming skill, and you need practice so that it can be improved. **However**, I could provide help with the logic idea of the solutions, about how to debug and what steps you have to follow in order to pinpoint the bugs in your program.

If you ask me to debug your code, with my presence I will simply ask you to trace your code with the input data line by line on a piece of paper, until you identify the error or the line of code that causes the error.

**Before you request help with debugging, please make sure you have done the following,**

1. You have not skipped the lectures where the topics related to the homework are presented. I always check attendance on the days when topics related to the homework are taught.
2. You have understood the logic idea (or the logic solution) of the homework problem clearly. Otherwise, please discuss with me the logic idea first.
3. You have put tremendous efforts into the homework, for example, 90% of coding has been done. And you have spent many hours trying to locate a logic error.
4. You have removed all compile errors by yourself, because you are supposed to have proficient Java programming skills at this point. Your teacher will not help you debug compile errors.
5. Your teacher will not debug your code that has been sent to him in an email. Please talk to him in person.
6. You have to request help with respect to debugging **24 hours** prior to the due time of a homework.
7. Your teacher will not help discuss or debug the problems designed for extra credits or bonus points.
8. Again, debugging code is a part of programming skills, please practice by your own. Your teacher will reserve the right to help you debug ONE time if the conditions above have been met.

***Audio and Video Recording Awareness:***

In this quarter, audio/video of my lecturing in classroom and in my office time may be recorded for teaching improvement purpose.

***No Excuses Are Accepted Listed Below*:**

1. I do not know the deadline. I am not aware of the deadline.
2. I turned in a wrong version of my code. I turned in a wrong file.
3. I do not have a pdf creator, so I turned in a different format.
4. I do not know how to create a zip file that contains all the required source code and documents.
5. I did not double check my submission and I turned in a corrupted file.
6. My internet is down, there is no access to canvas. My Computer is broken.
7. My car is broken and I have to fix it.
8. I run into technical problems when I was turning in assignments. I keep getting errors from Canvas. All these technical problems have to be verified and confirmed by the IT department!
9. I have **N** exams and **M** homework in my other **H** courses I am taking, please give me some extension.
10. I accidentally turned in my friend’s homework as my own, while we were working together. This is considered as cheating and will be reported according to EWU academic policies.

***Please refer to the EWU student book for more policies and this document is subject to change without notice.***