**El Camino College**

**Computer Science 2 (CS2)**

**Intro. to Data Structures, 5 units***;* ***4 hours lecture, 3 hours lab* Section#0152**

**Rooms:**

Sat. 8:00–9:25 AM Lab Online (Canvas)

Sat. 9:35 AM–11:40 PM Lecture Online (Zoom meeting)

Sat. 12:15–2:20 PM Lecture Online (Zoom meeting)

Sat. 2:30–3:55 PM Lab Online (Canvas)

**Fall 2020 (8-20-20 to 12-11-20)**

INSTRUCTOR INFORMATION

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| **Esmaail Nikjeh**  Office: Math Dept. (Academic Center)  Office Hours: Before and After class    Additional Office Hours : By Appointement | Phone: (818) 970-3435 Cell  Email: [enikjeh@elcamino.edu](mailto:enikjeh@elcamino.edu)  [enikjeh@ucla.edu](mailto:enikjeh@ucla.edu) |

COURSE INFORMATION

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| ADD POLICY | Students will be added as space permits and only when full documentation is provided showing that all prerequisites have been satisfied. **The last day to add is Sunday, Sep. 6, 2020.** |

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| PREREQUISITES | Completion of **Computer Science 1** with a grade of C or better, or equivalent. *Recommended Preparation: Mathematics 190* |

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| ABOUT THE  COURSE  TEXT | **Catalog Description:** In this course, the C++ computer language is used to demonstrate methods of representing and manipulating data. The student will learn the object oriented problem solving skills necessary to read, write, and correct complex computer programs, and to make important design decisions. Topics include lists, stacks, queues, trees, searching, sorting, modeling and algorithm analysis.  **Course Objectives:**  Taught as a second programming course in computer science, the data structure class teaches a student the technology of data storage and analysis of algorithms in software development. Using C++ object oriented technology, the course covers the object oriented paradigm, pointers, data structures, searching and sorting, and analysis of algorithms in detail. After completion of this course you will develop the competence in accurately choosing the requisite data structure for the efficient functioning of a software components, as well as understand the technology to analyze the sources of speed bottlenecks in software.    **C++ Plus Data Structures**, 6th Edition, Nell Dale, ISBN 978-1-4496-4675-2 Jones & Bartlett Learning. Textbook may be purchased from Campus bookstore, from Textbook Inc. across from El Camino College or from web sites, such as <http://www.half.com> or <http://www.amazon.com>  The older edition of the book (for example 5nd edition may be available cheaply and is equally good). |

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| Other helpful Books | The following books on C++ data structures are also considered very good quality:  Starting Out with C++: From Control Structures through Objects by Tony Gaddis (Addison-Wesley, **9th** edition 2018).  Data structures and other objects using C++ by Michael Main and Walter Savitch, Addison Wesley publishers.  Data Abstraction and Problem Solving with C++, Walls and Mirrors, by Frank M. Carrano and Janet J. Prichard, Pearson Education publishers.  The Suggested Readings will be references to the first text listed above. You are welcome to try any of these books. |

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| ATTENDANCE | Attendance in zoom is **mandatory**. Please watch the recorded lecture video which I post in canvas under **“Pages”** on the same day, if you cannot attend the lecture. I may explain something which is important. So it is your responsibility to watch the recorded videos in order not to miss anything. If you decide not to continue the course for any reason **please drop** the class **yourself**. However, you should not, under any circumstances, assume that you will be officially dropped from the class role by the instructor. It is the student’s responsibility to officially drop the course if they decide to do so. |

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| Last Day to Add Class | Last Day to Drop with Refund | Last Day to Drop without a “**W**” | Last Day to Drop with a “**W**” |
| **Sunday, Sep. 6, 2020** | **Sunday, Sep. 6, 2020** | **Sunday, Sep. 6, 2020** | **Friday, Nov. 13, 2020** |

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| GRADING | **Your grade will be based upon the following point distribution:**  Lab & HW Assignments ……….…..…….20% Online (Canvas)  Discussion Board (Online)...………….10% Online (Canvas)  Chapter Tests………………………….…..….50% TBA  Final Exam .……………………….….…………20% **Sat. 12-5-20** **in Canvas**  Total possible ……………...100% |
|  | ***Grading Scale:***  90%+ A  80%– 89%B  70%–79%C  60%–69%D  Below 60% F  **Your class grade is based on a weighted average between the above components, using the formula:**  0.20(Lab & HW) + 0.10(DQs & weekly summary) + 0.50 (Ch. Tests avg.)+0.20(final exam) |

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| STUDENT BEHAVIOR | *Students are bound by the Code of Academic Conduct that addresses issues of academic dishonesty, cheating and student behavior. If you are caught cheating on an exam, you will receive a* ***grade of zero*** *for that exam and the incident will be reported and become part of your permanent record. Any behavior that could be interpreted as disruptive to the class learning environment will result in the instructor filing a student misconduct report. Using extreme foul language is an example of such behavior.*  When you upload your programs, they must be neat, well-documented, and CORRECT. Take pride in your work! |
| HOMEWORK | Please upload your **source file** of your homework or lab using **Notepad**. Please don’t email me your codes with **errors**. Debugging is part of the programming and part of the grade for an assignment. All emails must have a subject line that begins with the **course number** and **course** **name**. Since we have a **large class** please make your email **short and right to the point**. Please **don’t send** me an essay email. Do not rely on me knowing who you are by your e-mail address. Some of these are fairly peculiar.  Assignments are due on the dates noted in canvas. **Late** assignments are dropped one grade level for being late each day. **I do not accept any HW, Lab, or DQs via email at all (No exceptions). No late HW or Lab will be accepted after being 2 days late. No late responses for the DQs will be accepted. Please don’t use any outside sources and sharing codes with your classmates. Both programs will be graded 0.** Class participation/attitude and class Lab & HW are very important in order to be successful in this course! I expect you to maintain a positive, respectful attitude throughout the entire semester.  **PLAGARISM**: If, in the opinion of the instructor, two programs are so similar as to indicate  a common origin, both programs will be severely penalized. You may talk about your work, but do not show your programs or work to anyone. |
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| CLASS PARTICIPATION | **Important information about Participation and Discussion’ responses**  For full participation credit for each week, you are required to post **weekly summary** and to respond to original Discussion Questions with one **substantive** response to your classmate’s message, in total you should post **4 substantive message (**weekly summary, two response to DQs, and one response to your classmate**)** in the classroom.  To qualify for participation credit the post must be related to the class discussions and on the **current week’s** class discussions. The posts you make answering the Class Discussions (in addition to your original responses) will count toward participation.  *Posts that are only* ***thank you****,* ***good job****,* ***questions****, or repeating the same response by other student* ***will not*** *qualify for participation credit.*  **Tips for Creating Substantive Participation**   * Explain why you agree or disagree, and add some examples to support your belief. * Relate your personal or work experiences to the topic at hand. Add ways you can apply the lessons from the class in your work and educational life. * *Always* show your work or explain your thinking as you work through a problem.   Add questions of your own for classmates to respond.  **Class Discussion**   * When posting your response to the class discussions you should **not copy and paste** information from other sources. All work posted should be in **your own words**. This is considered **plagiarism**. * Read the information, use your own words and post your understanding of the material in the classroom you learned during the lecture.   Posting a question does not qualify as a substantive posting. |

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| EXAMS | *There will be* ***about 4 chapter tests****. There are NO make-up tests; missing a test will result in a score of zero. (email me early if you know you will be absent on an exam day.)* ***In total, these tests will count for 50% of your grade. I don’t accept anything once the test is over (via email) no exception.***  **MAKE-UP TESTS:**▲No make-up or retest will be given. ▲One missing **test** score will be  replaced by the final exam percent score (if you inform me in advance why you cannot take the test  and we agree on this.  The comprehensive final exam will be given on **Sat. 12-5 -20 (Canvas).**  ***NO*** *exceptions.* ***The final exam*** *will count for* ***20%*** *of your grade.* ***No make-up final will be given (no exception). I don’t accept anything once the test is over (via email).***  ***Cheating:*** *It is illegal to give or receive aid during a test. Any student who cheats will get a zero on the test, and the test score will not be dropped.* |

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| ADDITIONAL  RESOURCES | **NOTE:** When you send e-mail to me, the subject must begin with **CS 2**  If you don't do this your mail will likely be treated as spam and deleted before I see it.  **Programming environment:**  You can download and install Visual Studio 2019 (C++) for community for free. You can **compile** and **RUN** your C++ **programs free** using online compiler “**https://www.onlinegdb.com/online\_C++\_compiler**”. One of the purposes of the early assignments is figuring out how to get things done at home or work. |
| STUDENT LEARNING OUTCOMES  Academic Honesty  ADA compliance  Holidays | **Upon successful completion of the course, students will:**  **1)** The student will design, code, test and document a programming solution to a specified problem requiring basic data structures.  **2)** The student will trace the execution and give the output of a given program or program segment pertaining to data structures.  **3)** The student will identify and correct the errors in a given program or program segment pertaining to data structures.  **4)** The student will implement and explain the concepts underlying the basic data structures: lists, stacks, queues, trees, and related abstract data types.  **5)** The student will explain and implement basic data structure techniques: pointers, classes, recursion, searching, sorting, templates and dynamic memory allocation.  **6)** The student will analyze the efficiency of the basic data structures and techniques.    *El Camino College places a high value on the integrity of its student scholars. When an instructor determines that there is evidence of dishonesty in any academic work (including, but not limited to cheating, plagiarism, or theft of exam materials), disciplinary action appropriate to the misconduct as defined in BP 5500 may be taken. A failing grade on an assignment in which academic dishonesty has occurred and suspension from class are among the disciplinary actions for academic dishonesty (AP 5520). Students with any questions about the Academic Honesty or discipline policies are encouraged to speak with their instructor in advance.*  ***Accommodations:*** *It is the policy of the El Camino Community College District to encourage full inclusion of people with disabilities in all programs and services. Students with disabilities who believe they may need accommodations in this class should contact the campus Special Resource Center as soon as possible. This will ensure that students are able to fully participate. As well one may contact the instructor privately to discuss your specific needs. The Special Resource Center is located in the southeast wing of the Student Services Center, (310) 660-3295. More guidelines for students with disabilities may be found on page 27 of 2013-2014 College Catalog or may visit their website at* [*www.elcamino.edu/academics/src*](http://www.elcamino.edu/academics/src) *.”*  Labor Day Holiday (Campus Closed), Monday, September 07, 2020  Veterans Day Holiday (Campus Closed), Wednesday, November 11, 2020  Thanksgiving Day Holiday/Weekend (Campus Closed), Thursday - Friday, November 26-27, 2020 |

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| Programming  DISCLAIMER | You can't learn to program unless you go through the steps of typing, compiling, debugging, running, retyping, and so on, programs that you have developed. Take small, easy to understand steps. Don't try to write and test a program in a single step. That is, don't type 100 lines of program, then try to compile and test it all at once. While it seems tedious at first, writing, compiling, and verifying small segments of program, then expanding and repeating in manageable increments is faster in the long term  Don't ask questions line -by-line as you type your program. Compile and debug programs on your own and find out what happens. The more errors you get the better you understand the concepts and coding.  **1)** In order to learn the material, you must read and study the textbook’s chapters. You will learn the material best by practicing it every day, by studying with others where possible, by doing more than the assigned homework, and by not being afraid to make mistakes. I strongly urge you to study with other members of this class.  **2)** Social networking during lectures will result in dismissal from lecture.  **3)** If you miss a lecture, please review the missed material before attending the next class meeting, otherwise your questions may not be answered since they will hold up the rest of class.  **4)** The final grade, based on computer calculations is not negotiable. Any groundless harassment about your final grade will result in disciplinary action.  *Although every effort will be made to adhere to the policies, procedures, and schedules outlined in this syllabus, the instructor reserves the right to revise any information without prior notice.* |

Fall 2020, Tentative Schedule

| Month | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Aug**  **2020** | **16** | **17** | **18** | **19** | **20** | **21** | **22** |
| **23** | **24** | **25** | **26** | **27** | **28** | **29** |
| **30** | **31** | **1** | **2** | **3** | **4** | **5** |
| **Sep**  **2020** | **6** | **7** Labor Day | **8** | **9** | **10** | **11** Patriot Day | **12**  **Test#1** |
| **13** | **14** | **15** | **16** | **17** | **18** | **19** |
| **20** | **21** | **22** Fall begins | **23** | **24** | **25** | **26** |
| **27** | **28** | **29** | **30** | **1** | **2** | **3**  **Test #2** |
| **Oct**  **2020** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **11** | **12** Columbus Day | **13** | **14** | **15** | **16** | **17** |
| **18** | **19** | **20** | **21** | **22** | **23** | **24**  **Test #3** |
| **25** | **26** | **27** | **28** | **29** | **30** | **31** Halloween |
| **Nov**  **2020** | **1** Daylight Saving Time Ends | **2** | **3** Election Day | **4** | **5** | **6** | **7** |
| **8** | **9** | **10** | **11** Veterans' Day | **12** | **13** | **14**  **Test #4** |
| **15** | **16** | **17** | **18** | **19** Great American Smokeout | **20** | **21** |
| **22** | **23** | **24** | **25** | **26** Thanksgiving Day | **27** Thanksgiving holiday | **28** |
| **29** | **30** | **1** | **2** | **3** | **4** | **5**  **Final Exam** |
| **Dec**  **2020** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **13** | **14** | **15** | **16** | **17** | **18** | **19** |