CECS 328 – Spring 2020 Syllabus
Data Structures and Algorithms
Instructor: Ali Sharifian

LECTURE:            Section 1 – TuTh 5:00PM - 5:50PM – VEC-401
LABORATORY:         Section 2 – TuTh 6:00PM - 7:15PM – ECS-414
OFFICE HOURS:       Mon. 6:30 pm to 7:30 pm, Wed. 6:30 pm to 7:30 pm – ECS-528
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COURSE WEBPAGE:     BeachBoard

## DESCRIPTION

This course provides a broad view of data structures and the structure-preserving operations on them. Students will learn about abstract data types, algorithms, and complexity. There will be programming projects to exemplify these concepts.

## CLASS PREREQUISITES

CECS 228 and (CECS 274 or CECS 275), all with a grade of "C" or better.

## ORGANIZATION

This course has a lab associated with it. The purpose of the lab will be to work on your lab assignments, and go over questions you may have related to the lecture and coursework. There will be lab assignments and those will be collected and graded. Furthermore, reading the textbook is essential, and the expectation is that you read the relevant chapters from the textbook (tentative schedule below).

Exams will only be held on the scheduled exam dates. In other words, absences on those days, unless it's a valid excuse sanctioned by law or the university (e.g. medical reasons), will not be excused and a separate exam date will not be set for the student. In addition, if the student has a valid excuse, evidence or proof may be requested (e.g. doctor's note) and you must provide a notice to the instructor at least two weeks in advance – unless that isn't possible (e.g. last minute medical emergency).

There will be no make-up lab assignments. If you miss a lab assignment, the instructor will not provide a make-up lab assignment or extend the due date for you. Exception is only if you have a valid excuse sanctioned by law or the university (e.g. medical reasons). In addition, if the student has a valid excuse, evidence or proof may be requested (e.g. doctor's note) and you must provide a notice to the instructor at least two weeks in advance – unless that isn't possible (e.g. last minute medical emergency).

When emailing the instructor, you must use your @csulb.edu email account. Otherwise, there is a high likelihood that your email will get caught in the instructor's spam filter and your email may not be read or responded to. It is your responsibility to check and follow-up with the instructor to ensure that your email has been successfully received.

**TEXT AND SOFTWARE**

Required Textbook:
- *Introduction to Algorithms, Third Edition* by Cormen, Leiserson, Rivest, and Stein.
  - ISBN: 9780262033848

Required Software:
- Programming projects will be in Java, so a Java IDE is required.
- If necessary, links to additional material will be posted on BeachBoard.

**LAB**

- Labs will be in the form of programming assignments and non-programming assignments.
- Programming assignments will be in Java. Students can work in teams of 2 or 3 for each programming assignment. One representative of each group needs to upload one single zip file of the required items to BeachBoard before the deadline (11:59 pm Pacific Time on the due date). No email submissions will be accepted.
- **Late policy:** Any lab assignment submitted within 24 hours after 11:59 pm of the due date will be accepted, but with a 25% penalty deduction. Any lab assignment submitted past 24 hours after 11:59 pm of the due date will not be accepted. Students should note that the timing of their last submission will be used as the criterion for the penalization.
  - **Note:** The instructor reserves the right to have some lab assignments be due by the end of the day's lab session without any late submissions allowed (i.e. late submissions will get zero credit in that case).

**GRADING PLAN**

Coursework will be weighted as follows:
1. Participation            5%
2. Lab                     20%
3. Midterm 1               25%
4. Midterm 2               25%
5. Final Exam              25%

It is at the instructor's discretion on whether to provide any extra credit opportunities. If extra credit is given, it is at the instructor's discretion on whether to allow a particular grade category percentage to exceed or be capped at the allotted percentage shown above. For example, if lab extra credit is given and a student receives an overall lab percentage of 21%, the instructor may have the class's grading plan to either allow the lab percentage to exceed 20% (due to the extra credit), or cap it at the 20%. Furthermore, the instructor may decide to cap some grade

categories and not others. Decision on whether to cap the grade categories will be made by the instructor at the end of the semester (after the final exam).

**GRADING SCALE**
A – 100%-90%
B – 89%-80%
C – 79%-70%
D – 69%-60%
F – 59%-0%

It is at the instructor's discretion on whether to curve the grades. Grades may be curved at the end of the semester, but you can never receive a grade lower than what is indicated in the scale above.

**ATTENDANCE**
Although not explicitly recorded (except for the first week), attendance is vital for success in this class. In addition, lecture notes will not be posted online. Students are responsible to attend the class and take notes from the materials presented during the lectures. You also need to be present in class in order to participate, take exams, and complete certain lab assignments that are due by the end of the lab session.

**PARTICIPATION**
A portion of your grade will be based on your participation in class. Each student is encouraged to take an active part in class discussions and activities. Honest and respectful dialogue is expected. Hostility and disrespectful behavior is not acceptable, and will result in a low participation score, up to and including receiving zero participation credit. Furthermore, simply attending class does not count towards participation. Throughout the semester, if you are curious as to how you're doing with your participation grade, you can email the instructor for status.

**CHEATING AND PLAGIARISM**
Cheating and plagiarism will not be tolerated in this course. Any individual caught cheating on quizzes, homework, lab projects, or the final exam will be punished to the full extent allowed under University regulations. Plagiarism on papers or assignments is not acceptable and work that is plagiarized will not receive credit. Plagiarism is considered cheating. Note: Any time another person's work is used without giving them proper credit, it is considered plagiarism and cheating. At a minimum, any student caught cheating will receive no credit for the work concerned, and will receive a reduction of one letter grade from their final course grade. The official CSULB Policy on Cheating and Plagiarism can be found here:
http://catalog.csulb.edu/content.php?catoid=2&navoid=30#cheating-and-plagiarism

To further prevent cheating, during the exams, the instructor reserves the right to move students to different seats in the classroom and ban headwear (such as hats and caps) – unless sanctioned by university policy (e.g. for religious purposes).

**DISABILITY OR MEDICAL ACCOMMODATION**
Students with a disability or medical restriction who are requesting a classroom accommodation should contact the Bob Murphy Access Center (BMAC) at 562-985-5401 or visit SSC, room 110 during 8AM-5PM weekday hours. BMAC will work with the student to identify a reasonable accommodation in partnership with appropriate academic offices and medical providers. We encourage students to reach out to BMAC as soon as possible.

**FOOD AND HOUSING ASSISTANCE**
Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the CSULB Student Emergency Intervention & Wellness Program. The website outlining the resources available is www.csulb.edu/basicneeds. Students can also e-mail supportingstudents@csulb.edu or call (562) 985-2038. If comfortable, students may reach out to the professor as they may be able to identify additional resources.

**TENTATIVE SCHEDULE (Dates may vary due to holidays and coursework)**

| Week 1 | Chapter 1 – The Role of Algorithms in Computing |
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| Week 2 | Chapter 2 – Getting Started |
| Week 3 | Chapter 3 – Growth of Functions |
| Week 4 | Chapter 4 – Divide and Conquer |
| Week 5 | Chapter 5 – Probabilistic Analysis and Randomized Algorithms |
| Week 6 | Chapter 6 – Heapsort |
| Week 7 | Midterm #1 |
| Week 8 | Chapter 7 – Quicksort |
| Week 9 | Chapter 12 – Binary Search Trees |
| Week 10 | Chapter 15 – Dynamic Programming |
| Week 11 | Chapter 15 – Dynamic Programming |
| Week 12 | Midterm #2 |
| Week 13 | Chapter 16 – Greedy Algorithms |
| Week 14 | Chapter 16 – Greedy Algorithms |
| Week 15 | Chapter 22 – Elementary Graph Algorithms |
| Finals Week | Final Exam |