COMP 7712 – Algorithms/Problem Solving – Fall 2020

Instructor: Nirman Kumar

Contact Information:

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Course Website: `http://www.cs.memphis.edu/~nkumar/teaching/F207712/7712.html`

Mode of Instruction: The mode of instruction is "Conventional Methodology". This means that the classes are in-person. However, for the first month, the mode of instruction is online. In-person classes start after the first month (unless the University decides otherwise). An email will be sent to all students about how online classes will be conducted. Basically, the lecture videos will be posted on ecourseware. But, there are more details that will be specified in the email. When classes become in-person, not all students can attend each lecture day. Half of the students will attend on Tuesdays and other half will attend on Thursdays. All University guidelines with regard to social distancing must be followed (please see below for COVID-19 policies). The class will be visible online to the other half of the students on a Zoom meeting. The time below refers to the in-person class schedule. In case class is online lectures will be made available by this time or close to this time, so that they can be watched during this slot. I will send email about who all will attend classes on Tuesdays and who all on Thursdays.

Lectures: T Th : 11:20 am - 12:45 pm, Dunn Hall 119

TA : Sahil Nokhwal (snokhwal@memphis.edu). Office hours W 10-11 AM.

Prerequisites: A basic course on algorithms and complexity. Basic graph theory, combinatorics, probability and linear algebra. Mathematical maturity.

Coverage: Fundamental algorithm design techniques such as recursion, greedy algorithms and dynamic programming. Basics of graph algorithms, network flows, optimization algorithms. NP-completeness.

Textbooks: Algorithms by Dasgupta, Papadimitriou and Vazirani - Book is freely downloadable. Jeff Erickson's superb new book - `http://algorithms.wtf` will also be referred to.

Grading: The grading will be done as follows. The scheme is subject to change at instructor's discretion. All homeworks and programming assignments are to be done separately by each student. Also please see the Plagiarism/Cheating policcy below. If we shift to in-person classes, the Class participation and problem solving part of the grade will be based on your attendance and how you participate in class and during problem solving sessions. For the online part of the class, a detailed email will be sent regarding how to show participation - basically viewing the videos, and scoring in quizzes based on videos. The email will contain instructions.

- 5 homeworks each carrying a weight of 6% for a total of 30%.
- 3 programming assignments each carrying a weight of 5%, for a total of 15%.
- 1 mid-term exam - 15%.
- A final exam of weight 30%.

- Class participation and problem solving - 10%.

Problem Sets: The due date for homeworks will be mentioned on the homework. Late submissions will not be accepted except under extreme conditions. The exact format for submission will depend on whether the class is online or in-person and will be announced with the assignment itself. Please acknowledge any external sources that you have taken help from to complete the assignment. As always, the Plagiarism/Cheating Policy applies. You will be graded on the following factors:

1. Correctness,
2. Completeness, and
3. Critical thinking.

Programming Assignments: The due date will be specified with the assignment. Late submissions will not be accepted except under extreme conditions. As always, the Plagiarism/Cheating Policy applies.

You will submit your completed programming assignments to the appropriate dropbox on eLearn. Include all test cases you ran to validate your program. Partial credit will be awarded, so please turn your solution in even if it doesn't run perfectly.

Exams: There is 1 mid-term exam for this course, and a final exam. If in-person classes are on, the mid-term will be during the lecture time. If the class is being conducted online, the time and method of conducting of exams will be announced before the exam.

If the exam is held in class: You must be on-time to lecture on exam day. If you miss an exam, you will receive a zero. Under documented, extreme circumstances, other arrangements may be made, but I expect you to reach out to me in advance of the scheduled exam date.

Attendance: If the class is conducted in-person: During the problem solving sessions, you will be encouraged to step up and solve a problem we work on. Regardless of whether you succeed, *participation is encouraged and counts for points. So step up and try to solve the problem.* In order to give chance to all the students, I may assign who should solve the problem. This also means that **you attend classes regularly** otherwise you can miss problem solving sessions.

It is encouraged that you come to office hours and/or GA office hours but such attendance will not count towards the points for attendance.

All material I cover in class is fair game for problem sets and exam questions.

When you come to class, I ask that you be fully present. Please be respectful of your fellow students, me, and the TA's, by participating attentively and non-disruptively. If you have a question related to the material being taught, please raise your hand. Please do not use cell phones in the class. If it is extremely urgent to use one (even for text) please step outside. This should not be too frequent.

Late submissions: All assignments are expected to be completed and turned in on schedule. Due dates will be clearly indicated for each assignment.

Late assignments are NOT accepted except in extreme circumstances. If you feel that your circumstances warrant a late submission, get in touch with me as soon as possible.

Makeup exams: Makeup exams will be given only under extreme circumstances. If you feel that your circumstances warrant a makeup quiz/exam, get in touch with me as soon as possible.

COVID-19 Health and Safety Policy - Masks and Social Distancing: All students, faculty and staff will wear masks in all public spaces, including our classroom (lab) per the COVID-19 policy. The first time a student enters a classroom without wearing a face covering, the student will be asked to leave the class until they return a covering. Further violations will be referred to the Office of Student Accountability. Students who repeatedly or flagrantly violate these community expectations may be referred for discipline under the Student Code and, if appropriate, immediately removed from campus by the Dean of Students.

Student Health: Students who are experiencing symptoms such as sneezing, coughing or a higher than normal temperature should inform me by email so they can be excused from class and should stay home. Students should contact their health care provider or the Student Health Center at `https://www.memphis.edu/health/`. Students who have a positive COVID-19 test should contact the Dean of Students at deanofstudents@memphis.edu.

Student Accommodations: If and when we return to class, students seeking to remain remote for health or other serious reasons should discuss their options with me. Students with accessibility issues or with other learning accommodation needs due to a disability should contact Disability Resources for Students (DRS) to submit an official request for course accommodations. Contact DRS at 901.678.2880 or at drs@memphis.edu. (`https://www.memphis.edu/drs/index.php`)

Student Resources: Students who need additional resources can contact the Dean of Students Office at `https://www.memphis.edu/deanofstudents/crisis/index.php`.

Plagiarism/Cheating policy: All assignments for this class are to be written individually.

You may refer to a book, or the Internet or some other source but in that case, please acknowledge all such sources in your submission.

If I determine that you copied something directly from an external source (book, Internet, or some other source), you will receive a failing grade on the assignment and (at my discretion) a failing grade in the course. If I determine that you have copied another student's assignment, this will happen to both you and the person from whom you copied. The incident may also be forwarded to the University Judicial Affairs Office for further disciplinary action.