

C S/DSA 4413-001 Algorithm Analysis Syllabus

Instructor: Dr. Lauren Grimley, **Office:** PHSC 529

Contact information: lgrimley@ou.edu

Class Time: TR 10:30 AM -11:45 AM, **Class Location:** Dale Hall 206

Teaching Assistants: Shyam Sundar Murali Krishnan (shyamkrishnan@ou.edu) and Brianna Patten (brianna.patten@ou.edu)

Office Hours: ***Mondays from 11:00 AM-12 NOON*** with Shyam in DEH 115

Tuesdays from 9:00-10:00 AM with Dr. Grimley in PHSC 529 ***and from 1:30 PM-2:30 PM*** with Brianna in DEH 115

Wednesdays from 11:00 AM-12 NOON with Shyam in DEH 115 ***and from 12 NOON-2:00 PM*** with Dr. Grimley in PHSC 529

Thursdays from 1:30 PM-2:30 PM with Brianna in DEH 115

Fridays from 11:00 AM-12 NOON with Shyam in DEH 115

COURSE DESCRIPTION AND PREREQUISITES: (Crosslisted with DSA/C S 4413)

Prerequisites: C S 2413 and C S 2813; or MATH 2513; or C S 5005. Design and analysis of algorithms and measurement of their complexity. This course introduces various algorithm design strategies: divide and conquer, greedy principle and dynamic programming to solve a variety of problems using algorithms of various types - deterministic and randomized, serial and parallel, centralized and decentralized, program based and circuit based.

REQUIRED TEXT: "Introduction to Algorithms" (4th edition) by Cormen, Leiserson, Rivest, and Stein.

GRADING: Grades are determined by the following grade categories, weighted as specified:

- Quiz [20%]
- Interview Preparation [10%]
- Homework [20%]
- Midterm [20%]
- Final Exam [20%]

- Best Exam (the highest grade between the Midterm and Final) [10%]

The *minimum* grade you need in order to attain each letter grades is:

A	B	C	D	F
90	80	70	60	0

Any estimated final grade calculated by Canvas are not to be considered official grades.

Late work will not be accepted without advance approval. Your least two quiz scores and lowest homework will be dropped. These benefits are provided for you to take care of personal emergencies and other irregularities. No make-up quizzes will be provided.

ATTENDANCE: It is important to attend class regularly and engage in the material. Quizzes will be conducted in class.

HOMEWORK: Homework will be assigned each week. Assignments will be posted on Canvas and submitted through gradescope. *Students are allowed to discuss problems with others, however all submitted work must be in your own words, as you understand it.*

QUIZZES: Quizzes will be administered during most class days, without prior notice. Students should be prepared to answer questions based upon material discussed in class and/or requested readings. The purpose of the quizzes is to provide immediate formative assessment to inform both the instructor and the students of the student's current level of understanding. While most quizzes will be open-note, open-textbook, they will require quick responses. We will primarily use Top Hat for our quizzes.

Top Hat is a student response system (think "clickers") that we will use during most class periods. I will pose some sort of question (multiple choice, true/false, numerical answer, etc.), and you will respond using the Top Hat app or the Top Hat website.

INTERVIEW PREPARATION: Many of the skills we will be developing in this course are features of a technical interview, in which you must put the algorithms and algorithm analysis we'll learn to practice. Points in this category will be determined by a range of activities which you may pick and choose from including solutions to leetcode problems, running time analysis of solutions, and mock interviews.

EXAMS: There will be one midterm, in addition to a cumulative final exam. The exam will take place in class, October 8. Should we need to deviate from this schedule to better serve the goals of the course, students will be notified in advance. The cumulative final exam will be, as officially scheduled, December 12 from 8:00-10:00 AM.

Exams, taken during the scheduled time, will be graded as follows. Scores will begin at 50. The remaining 50 points (out of 100) will be determined by students' responses to 5

questions, worth 10 points each. Should a student unexpectedly miss the scheduled midterm exam without prior approval, the midterm will be determined by the student's percentage out of 50, with scores beginning from 0. Grades will not typically be curved, and grade adjustments on a case-by-case basis will not be made (and so please do not ask).

ACADEMIC INTEGRITY: Unless there are explicit instructions to the contrary, all work for the class will be entirely your own work. The use of work done by others without giving credit or having permission is considered plagiarism. A violation of these policies is an immediate and serious breach of the academic integrity policies of the University

Cheating is strictly prohibited at OU. It is the instructor's professional obligation to report academic misconduct. Sanctions for academic misconduct can include expulsion from the University and an F in this course. Typically, all work on exams and quizzes must be yours and yours alone without any outside help. It is your responsibility to know and follow the rules set by the instructor.

ACCESSIBILITY AND DISABILITY ACCOMMODATIONS: Students requiring academic accommodation should contact the Accessibility and Disability Resource Center for assistance at (405)325-3852 or TDD: (405)325-4173. If you have accommodations in place, please contact your instructor within the first week of classes (or within the first week of accommodations being approved for you) in order to discuss the relevant details for implementing your accommodations. Note that depending on the specific accommodations requested and the structure of the course, you may need to be referred to the course coordinator to make appropriate arrangements for accommodations for uniform exams and/or quizzes.

DISCRIMINATION, BIAS, HARASSMENT: In light of incidents on other campuses and to further enhance responsiveness, the OU has established a 24-hour Reporting Hotline. The hotline will serve as an added protection for OU students, handling reports of bias, discrimination, physical or mental harassment or misconduct by OU community members. The 24-hour Reporting Hotline can be accessed by calling 844-428-6531 or going online to www.ou.ethicspoint.com.

EMERGENCY PROCEDURES: During an emergency, there are official university procedures that will maximize your safety. There are also severe weather refuge sites on campus.

LAND ACKNOWLEDGEMENT: Long before the University of Oklahoma was established, the land on which the University now resides was the traditional home of the Hasinai, Caddo Nation and Kiowa, Wichita & Allied Tribes. We acknowledge this territory once

also served as a hunting ground, trade exchange point, and migration route for the Apache, Comanche, Kiowa and Osage nations. Today, 39 tribal nations dwell in the state of Oklahoma as a result of settler and colonial policies that were designed to assimilate Native people. The University of Oklahoma recognizes the historical connection our university has with its indigenous community. We acknowledge, honor and respect the diverse Indigenous peoples connected to this land. We fully recognize, support and advocate for the sovereign rights of all of Oklahoma's 39 tribal nations. This acknowledgement is aligned with our university's core value of creating a diverse and inclusive community. It is an institutional responsibility to recognize and acknowledge the people, culture and history that make up our entire OU Community.

MENTAL HEALTH SUPPORT SERVICES: If you are experiencing any mental health issues that are impacting your academic performance, counseling is available at the University Counseling Center located on the second floor of the Goddard Health Center at 620 Elm, Rm. 201. To schedule an appointment call (405)325-2911.

PREGNANCY/CHILDBIRTH ACCOMMODATIONS: Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your professor as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability.

RELIGIOUS HOLIDAYS: OU policy excuses missed classwork due to absences of students that result from religious observances without penalty. For more, see Faculty Handbook section 3.15.2.

SEXUAL MISCONDUCT AND DISCRIMINATION (TITLE IX RESOURCES): For any concerns regarding gender-based discrimination, sexual harassment, sexual assault, dating/domestic violence, or stalking, OU offers a variety of resources. To learn more or to report an incident, please contact the Sexual Misconduct Office at (405)325-2215 (8am-5pm, M-F) or smo@ou.edu. Incidents can also be reported confidentially to OU Advocates at (405)615-0013 (phones are answered 24 hours a day, 7 days a week). Be advised that a professor/GA/TA is required to report instances of sexual harassment, sexual assault, or discrimination to the Sexual Misconduct Office. Inquiries regarding non-discrimination policies can be directed to either a Title IX Coordinator or University Equal Opportunity Officer (405)325-3546 or smo@ou.edu.