

UNIVERSITY of HOUSTON

DEPARTMENT OF COMPUTER SCIENCE

COURSE TITLE: COSC 3320 - Algorithms and Data Structures

TIME: M/W 4:00 PM - 5:30 PM

LOCATION: SEC 103

Instructor: [Khalid Hourani](#)

OFFICE HOURS: T/W 10:00 A - 11:00 AM

E-MAIL: kmhouran@cougarnet.uh.edu

Teaching Assistants

Name	E-Mail	Office Hours	Room
Tariq Achor Zyad	tachorzyad@uh.edu	M/W 1:30 PM – 2:30 PM	PGH 221
Kaitlin T Wood	ktwood3@uh.edu	T/Th 1:00 PM – 2:00 PM	TBA
TBA	TBA	TBA	TBA

Syllabus

I. **Course:** COSC 3320 - Algorithms and Data Structures

- A. **Catalog Description:** Algorithm analysis and design, heuristics; advanced tree structures; advanced hashing techniques; sorting and searching; graphs, sets. NP-Completeness, Time and Space complexities.
- B. **Prerequisites:** MATH 3336, and COSC 2320 or 2430. Declared Computer Science majors and minors only.

II. **Course Objectives:** The student will learn

- to think algorithmically
- techniques for designing efficient algorithms
- data structures, their efficient implementations, and the role they play in algorithm design
- mathematical techniques for analyzing and reasoning about algorithms

III. **Course Content:** Students will explore a variety of algorithmic problems, related through themes of problem domain, algorithmic technique, and analysis technique. Topics include

- Algorithm Design and Algorithmic Thinking
- Mathematics of Algorithm Analysis
- Algorithmic Number Theory
- Recursion
- Divide and Conquer
- Searching and Sorting
- Greedy Algorithms
- Dynamic Programming
- Graph Algorithms

IV. **Course Structure:** The instructor will assign readings from the textbook. Students are expected to complete the readings *before class*.

V. **Textbook:** [Algorithms](#) by G. Pandurangan

VI. **Course Requirements:**

- All assignments will be submitted on Canvas through the Canvas text editor. Assignments submitted in any other fashion (e.g. through email, linking an external document) **will not be accepted**.
- Students are responsible for ensuring that the correct items are submitted on Canvas. No points will be granted for uploading an incorrect or corrupted file.
- Students are responsible for ensuring that the correct items are submitted to Canvas. **Late work will not be accepted**. The lowest midterm score (see item VII.) will be dropped.

VII. **Evaluation and Grading:**

Homework 1	5%
Homework 2	5%
Homework 3	5%
Homework 4	5%
Midterm 1	25%
Midterm 2	25%
Midterm 3	25%
Final Exam	30%

Grades are curved so that the average class score corresponds *approximately* to a B.

Policy on grades of I (Incomplete): The grade of “I” (Incomplete) is a conditional and temporary grade given when a student, for reasons beyond their control, has not completed a relatively small portion of all requirements. Sufficiently serious, documented situations include illness, death in the family, etc.

VIII. **Consultation:** Office hours will be Tuesday and Wednesday, from 10:00 AM – 11:00 AM in PGH 520.

We will use Piazza for class discussion. Find our class signup link at <https://piazza.com/uhspring2024/cosc3320>. The access code will be provided in class. **All content questions must be asked on Piazza**, in class, or during office hours.

IX. **Tutoring:** Students can take advantage of tutoring through the following:

- LAUNCH – www.uh.edu/ussc/launch
At LAUNCH, students can:
 - Drop in for individual Peer Tutoring on over 100 different courses—no appointment necessary! LAUNCH is located in Cougar Village 1, room N109. <http://www.uh.edu/ussc/launch/index.php>.
 - Attend a **Success Workshop**: <http://www.uh.edu/ussc/launch/index.php>.
 - Set up an individual appointment with an **Academic Counselor**: **713-743-5411**
- Scholar Enrichment Program (SEP) provides online/remote tutoring services using Microsoft Teams - <https://uh.edu/nsm/scholar-enrichment/tutoring/>

Addendum: Whenever possible, and in accordance with 504/ADA guidelines, the University of Houston will attempt to provide reasonable academic accommodations to students who are registered and approved through the Center for Students with Disabilities. Students are responsible for communicating with the faculty to be sure appropriate arrangements are made. Registering with CSD is not sufficient. Communication is critical. Please call 713-743-5400 for more assistance.

Academic Honesty: It is each student’s responsibility to read and understand the Academic Honesty Policy found at <http://catalog.uh.edu/content.php?catoid=6&navoid=1025>. There will be no tolerance towards academic dishonesty, and cheating can lead to report of a violation of the Academic Honesty policy to the UH Office of Undergraduate Academic Affairs.

All submitted work should be your own. Copying or using other people's work (including from the Web) will result in –MAX points, where MAX is the maximum possible number of points for that assignment/homework/exam. Repeat offenses will result in a failing grade for the course and will be reported to the Chair. If you have any questions, please reach out to the professor and the TAs.

By submitting your work or exam, you affirm that you have followed the Academic Honesty Policy and the Honor Code.

Honor Code

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: *"I understand and agree to abide by the provisions in the [University of Houston Undergraduate Academic Honesty Policy](#). I understand that academic honesty is taken very seriously and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston."*

NOTE: The materials provided by the instructor in this course are for the use of the students enrolled in the course only. Copyrighted course materials (including homeworks, assignments, exams, and their solutions) should not be further disseminated without instructor permission. This includes sharing content to commercial course material suppliers such as Course Hero or Chegg. Students are also prohibited from sharing materials derived from the instructor's content (e.g., a student's lecture notes).

COVID-19 Information

Students are encouraged to visit the University's COVID-19 website for important information including diagnosis and symptom protocols, testing, vaccine information, and post-exposure guidance. Please check the website throughout the semester for updates. Consult the Undergraduate Excused Absence Policy (<http://catalog.uh.edu/content.php?catoid=44&navoid=15976>) for information regarding excused absences due to medical reasons.

Reasonable Academic Adjustments/Auxiliary Aids The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact the Justin Dart Jr. Student Accessibility Center (<https://uh.edu/accessibility/>) (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

UH Email Please check and use your CougarNet email for communications related to this course. To access this email, login to your Microsoft 365 account with your CougarNet credentials.

Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Center for Students with DisABILITIES](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's

recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Syllabus Changes Please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible.

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. Also, there is no appointment necessary for the "Let's Talk" program, which is a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html#hours

Resources for Online Learning

The University of Houston is committed to student success, and provides information to optimize the online learning experience through our [Power-On](#) website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.