

# Spring 2023: CS 303-2G Algorithms and Data Structures

## Instructional Method

**Face-to-Face:** This class will be conducted in person, on campus, on the days and times listed in the course schedule. Social distancing and other safety measures must be followed. As described below, there may be online elements to the course.

**Lecture:** Tuesday/Thursday: 05:00 pm – 06:15 pm HHB 104

**LABs:** CS 303L-Y1 : Wednesday / 10:10 am- 11:00 am UH 1007

CS 303L-K3 : Wednesday / 11:15 am- 12:05 pm UH 1007

## Course Instructors

Dr. Mahmut Unan

Email: [unan@uab.edu](mailto:unan@uab.edu)

**Office:** UH 4159 or **Virtual Office** (<https://uab.zoom.us/j/9475934695>)

**Office Hours:** Monday 10:00 am -01:00 pm

## Teaching Assistant

Menon, Vaishak K ([vmenon19@uab.edu](mailto:vmenon19@uab.edu))

Patel, Om M ([ompatel@uab.edu](mailto:ompatel@uab.edu))

Gathara, Michael M ([mikegtr@uab.edu](mailto:mikegtr@uab.edu))

## TA Office Hours (UH 1009 or UH 1008)

Monday: 10:00 am – 01:00 pm (Unan)

Tuesday: 11:00am -12:30pm (Om), 12:30pm -1:30pm (Vaishak)

Wednesday: 12:00pm – 1:00pm (Michael), 03:30pm -04:30pm (Vaishak)

Thursday: 11:00am -12:30pm (Om), 12:30pm -1:30pm (Vaishak)

Friday: 10:00am – 12:00pm (Michael)

## Course Homepage

Please login to Canvas at <http://www.uab.edu/canvas> for up-to-date course information.

## Prerequisites

CS 250 [Min Grade: C] and (CS 203 [Min Grade: C] or CS 302 [Min Grade: C])

## Course Description

Techniques for design and analysis of algorithms; efficient algorithms for sorting, searching, graphs, and string matching; and design techniques such as divide-and-conquer, recursive backtracking, dynamic programming, and greedy algorithms.

## Textbook (required)

Introduction to Algorithms, Third Edition By Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein. <https://mitpress.mit.edu/books/introduction-algorithms-third-edition>

## Objectives/Course Outcomes

- 1) To determine the time and space complexity of algorithms
- 2) To study and understand different classes of classic algorithms in computer science
- 3) To demonstrate the ability to apply appropriate design techniques to solve practical problems and to provide justification for that selection
- 4) To demonstrate the ability to evaluate algorithms, to select appropriate algorithm and data structure, and to implement an efficient solution

## Grading Policy

Midterm Exam	20%
Labs/Homework	50%
Final Exam	30%

## Homework

I expect to have ~13 HWs. Each Homework is completed alone, and subject to honor code enforcement.

Homework will be the most important part of your grade. Please take them seriously.

Homework will have randomized code review. On each homework, a subset of you will be asked to schedule a code review: where you discuss your code with a TA or with me and answer questions about your approach in the code. Code review is a standard industry practice. Please do not wait until the last minute to submit your assignments. The report will be the most important part of your homework, please read the homework description and grading rubrics seriously.

## Homework Submission Guide

Each homework submissions must include the “**independent completion form**” initialized and dated by the student. The form is located in Canvas under the Miscellaneous section. Failing to submit this document may affect your homework grade.

## Late Submission Penalties

Due date for each assignment will be written on the assignment document. Any assignment turned in after the deadline is considered late and will receive a score of zero. **No late submission is allowed in this course**

## Important Dates (\*\*\*Tentative)

**Martin Luther King Holiday:** 01/16/2023 No lectures, labs, office hours..etc

**Exam 1:** 02/09/2023 Thursday, Lecture Time (Details will be announced before the exam)

**Exam 2:** 03/09/2023 Thursday, Lecture Time (Details will be announced before the exam)

**Final Exam: Wednesday, April 27<sup>th</sup> 2023, 04:15 PM – 06:45 PM** (Official time, Details will be announced before the exam)

## Grading Scale

The following scale will be used to determine final grades.

A = 100-90%    B = 80-89%    C = 70-79%    D = 60-69%    F = < 60%

## Exams

There will be three exams, two midterms and a final. They are all Closed book. Details will be given in class. If you miss any midterm due to an emergency, it may be made up within 2 days of the exam, but only upon satisfactory proof of the emergency (e.g., letter from the doctor's office). Due to the quick turnaround in grading, the final exam may not be made up if missed. You will find the exam dates below

## Makeup Policy

Midterm exam cannot be made up except for extraordinary situations such as serious illness supported by a doctor's certificate. ***The final exam cannot be made up.***

## **Time Commitment**

This class meets twice per week for 75 minutes each time. In addition to class time, you should spend about 6 hours per week reading, studying, preparing for class discussions, and completing assignments and assessments.

## **Class Attendance**

Attendance is **mandatory** for both the lecture and lab. If you know you will be absent for a legitimate reason, let the instructor know. If you are sick bring a doctor's excuse or a written university excuse to resolve the absences. An absence has to be resolved as soon as possible - otherwise it will not be treated as an excused absence.

There will be NO make-up labs. If you miss a lab session you will get zero of the in-class assignment part of the lab, you can still submit the homework and get credit for the homework part of the lab.

## **Course Netiquette**

There are course expectations concerning etiquette on how we should treat each other online. It is very important that we consider the following values during online discussions and email.

Respect: Each student's opinion is valued as an opinion. When responding to a person during the online discussions, be sure to state an opposing opinion in a diplomatic way. Do not insult the person or their idea. Do not use negative or inappropriate language.

Confidentiality: When discussing topics be sure to be discreet on how you discuss children, teachers, and colleagues. Do not use names of people or names of facilities.

Format: When posting use proper grammar, spelling, and complete sentences. Avoid using ALL CAPITALS. This signifies that you are yelling. Avoid using shortcuts/text abbreviations such as "cu l8r" for "See you later."

Relevance: Think before you type. Keep posts relevant to the discussion board topic.

## **Course Time Zone**

All assignment deadlines listed on this syllabus are in Central Time. If you are in a different time zone, including any traveling, you are responsible for calculating the time difference and submitting assignments or attending online meetings on time. Use the [U.S. Official Time Zone Site](#) as a reference.

## **UAB Policies and Resources**

### **Add/Drop and Course Withdrawal**

- Drop/Add: Deadlines for adding, dropping, or withdrawing from a course and for paying tuition are published in the [Academic Calendar](#) available online. Review the [Institutional Refund Policy](#) for information on refunds for dropped courses. It is the student's responsibility to initiate add/drop procedures. Students may drop and add courses online after they have registered and until the drop/add deadline online using [BlazerNET](#).
- Withdrawal: To avoid academic penalty, a student must withdraw from a course by the withdrawal deadline shown in the academic calendar and receive a grade of W (withdrawn). Failure to attend class does not constitute a formal drop or withdrawal. The official course withdrawal must be completed online in [BlazerNET](#).

### **Misconduct**

The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Students, faculty, and the administration of the institution must be involved to ensure this quality of academic conduct. Review the Academic Honor Code and Student Code of Conduct linked below.

- [Academic Honor Code](#)
- [Student Code of Conduct](#)

### **DSS Accessibility Statement**

Accessible Learning: UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact me to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call (205) **934-4205** or visit [the DSS website](#).

### **Title IX Statement**

The University of Alabama at Birmingham is committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. UAB provides several avenues for reporting. For more information about Title IX, policy, reporting, protections, resources and supports, please visit the [UAB Title IX webpage](#) for UAB's Title IX Sex Discrimination, Sexual Harassment, and Sexual Violence Policy; UAB's Equal Opportunity and Discriminatory Harassment Policy; and the Duty to Report and Non-Retaliation Policy.

## Communication Policy

**Canvas Discussion Board:** Canvas has a great feature called “Discussions” and it will be our **first stop** to ask “general questions” such as if you don’t understand the concept or course management questions that you can’t find in the syllabus. We encourage all the students to use this platform effectively. We will be watching the discussions closely, thus do not hesitate to answer your classmate’s question. Even though your answer is not correct, it will be addressed by the Teaching Assistants or the instructor. Since everyone will get a notification about your question, this platform is the fastest way to get an answer. *You are not allowed to share any solution or your code on the discussion board.*

**Teaching Assistants:** You can use Canvas message or direct email to reach any Teaching Assistant and ask questions related to your assignments. Teaching Assistant will be replying to your emails/messages within **24 hours on weekdays** and a slower response on weekends (Emails received after 5 pm on Friday might be answered on Monday). We suggest all students to use your time efficiently, start working on your assignment as soon as possible to avoid any last-minute problems. Include *<prefix, course number, and section code>* in the subject line of your email for a faster response. If you need to share your code with your TA, please use Canvas message because UAB email most of the time doesn’t allow you to attach your code.

**Course Instructors:** If you couldn’t get sufficient help from discussion board or Teaching Assistant, feel free to send a message/email to your instructor. If you have a private issue that you don’t want to discuss with your TAs, you are always welcome to send an email to your instructor. Instructor will be answering all messages and e-mails within **3 business days**. Please note that instructors will be teaching 4 courses this semester and has more than 475 students and other administrator roles in the department.

## Counseling

Student Counseling Services supports students in achieving personal, academic, and lifelong goals by providing individual and group mental health services, prevention and outreach programming, crisis and emergency support, and consultation services. Student Counseling Services advocates for safe and inclusive learning environments in the university community. Further details can be found at: <https://www.uab.edu/students/counseling/>

Information on mental health & wellbeing can be found at: <https://www.uab.edu/students/counseling/mentalhealthmatters>

## E-mail

**Every student will be required to use his/her official email address that is blazerid@uab.edu.** New students must login and configure their email addresses. For more details on obtaining blazerid and configuring email please see: <http://www.uab.edu/blazerid>. All email communications will be made using this address. Additional instructions or announcements will be sent by e-mail, so check your mail often - at least twice a day (once in the morning and once at night). Also check the course Canvas page for up-to-date information and announcements. Instructor will check email frequently; e-mail is often the best way to contact the instructor.

## Academic Integrity Code

The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Students, faculty, and the administration of the institution must be involved to ensure this quality of academic conduct. Please review UAB's Academic Integrity Code located at

<https://www.uab.edu/one-stop/policies/academic-integrity-code>

Violations of this honor code will result in a variety of sanctions as provided in the Code. A minor offense may result in a reduced grade for the associated assignment or homework. A major offense may, at a minimum, result in the failure of the course. Repeat offenders may be expelled from UAB.

It is important to note that

- 1) "All students are expected to be familiar with the Academic Integrity Code and abide by it. By their continued enrollment at the University, students reaffirm their pledge to adhere to the provisions of the Academic Integrity Code."
- 2) Unauthorized assistance from third parties including a commercial service such as [chegg.com](https://www.chegg.com) or engaging another person (whether paid or unpaid) constitutes an act of cheating and is interpreted as a major offense in the Academic Integrity Code, resulting in F in the course (see chart below). Further, students are prohibited from posting homework, assignments or examination questions to non-UAB web sites without explicit authorization by the instructor.
- 3) UAB requires both faculty and students uphold the standards for academic integrity. Students who witness academic misconduct have a duty to report it.

### Suggested Penalties for Violations of Different Severity

(Page 21 of Academic Integrity Code)

1 <sup>st</sup> offense minor	1 <sup>st</sup> offense moderate 2 <sup>nd</sup> offense minor	1 <sup>st</sup> offense major 2 <sup>nd</sup> offense moderate 3 <sup>rd</sup> offense any	PROPOSED SANCTION
✓	✓	✓	Academic Integrity workshop
✓			Reduced grade on assignment
✓			Additional Course Work
✓			Opportunity to revise/repeat
✓	✓		Failure of Assignment
✓	✓		Reduced course grade
	✓	✓	F in Course
	✓	✓	Academic Probation
		✓	Academic Suspension
		✓	Academic Expulsion

Please also review UAB Student Code of Conduct at the linked below:

<https://www.uab.edu/students/accountability/student-conduct-code>

<https://www.uab.edu/policies/content/Pages/UAB-UC-POL-0000781.html>

**IMPORTANT:** Assignments may be submitted to plagiarizing detection software, such as Turnitin or MOSS. Turnitin is a comprehensive digital repository of potentially plagiarize material and MOSS is a system designed to detect source code plagiarism <https://theory.stanford.edu/~aiken/moss/>. Your work may be stored in those databases and used as a reference for future comparisons.

Students who plagiarize a computer program (or parts of a program), get others to write a program (or parts of a program), or are found cheating on a quiz/exam, will be reported for academic dishonesty.

### **UAB CS Honor Code**

Please read UAB Academic Honor Code is carefully. Violations of this honor code will result in a variety of actions as provided in the Code. The minimum penalty is 0 on the entire associated homework/exam. Second offense will result in a 'F,' and possibly including expulsion from UAB (as the case is forwarded to the ethics board).

Specifically, the Department enforces the following "3 Strikes, You're Out" penalty escalation procedure for its undergraduate programs:

If it's the first violation of the UAB Academic Honor Code by a student, the student may receive a zero (0) mark for the particular assignment or homework.

If it's the second violation, the student may receive an F grade for the course.

If it's the third violation, the student may be referred to appropriate college and university level disciplinary committees. Penalties the student receives may include expulsion from UAB.

For a graduate student, the Department enforces the following "2 Strikes, You're Out" penalty escalation procedure for its graduate programs, the program in which the student is enrolled may choose to expel the student from the university on the first offense while taking comprehensive examinations, performing research, preparing manuscripts or generally during the performance of other activities related to the process of satisfying degree requirements. For academic misconduct within the context of meeting course requirements, students will be expelled on a second offense. Further details can be found in the graduate catalog: <http://catalog.uab.edu/graduate/academicprogress/#academicethicsandmisconducttext> UAB requires both faculty and students uphold the standards for academic honesty and integrity. Students who witness academic misconduct have the duty to report it.