

CS 5350/6350: Advanced Algorithms
Fall 2023
Syllabus

Title:	CS 5350/6350: Advanced Algorithms, CRN 13544/12264
Term:	Fall 2023
Duration:	Mon 08/28/2023 through Mon 12/04/2023
Lecture Time:	Mon 6:00PM - 8:50PM
Lecture Location:	CCSB 1.0202
Instructor:	Dr. Christoph Lauter cqlauter@utep.edu +19157475939 (office) +19152963175 (urgent cases, text message only)
Instructors Office Hours and Location:	Email anytime, Phone/Teams during business hours, Office (CCSB 3.0610) Mon-Thur 10:00AM-11:00AM
Class Web page:	https://www.christoph-lauter.org/utep-advanced-algorithms/
Description:	This course provides a review of mathematical techniques for analysis of computer algorithms, techniques for design of efficient algorithms, description and analysis of both well-established and recently developed algorithms.
Learning Objectives:	The objective of this course is for students to become aware of the appropriateness of algorithms as solutions to given problems, of their efficiency, and to be able to discuss and justify solving techniques. Students will be able to implement algorithms adapted to the problems at hand. They will know how to communicate to team members the features of a given problem along with the solution they propose with its justification.
Textbooks:	Required: <ul style="list-style-type: none">• Th. Cormen, Ch. E. Leiserson, R. L. Rivest, C. Stein, Introduction to Algorithms, 4th edition, MIT Press. Optional: <ul style="list-style-type: none">• Other readings and resources may be posted on the course webpage.

Homework assignments:	Assign-	<ul style="list-style-type: none"> • Students are expected to review topics taught in class, work on solutions to assigned problems, and be able to demonstrate skills and solutions during class. Homework assignments will be posted on the course website. Answer will be posted for selected problems. • To obtain full credit for the class participation and homework grade, you will need to post questions about at least 10 different reading assignments and present solutions to at least 3 homework problems. Questions about reading assignment must be posted before the class for which they are assigned and cannot be made up later.
Workload & attendance:	Atten-	<p>This course requires participation during the in-class lectures, in addition to the daily readings and the homeworks. Students must read the textbook before the corresponding class. Attendance in the lecture will be checked. This course requires student commitment to understanding the discrete mathematics behind complex, advanced algorithms. Students should expect to work on reading, assignments and other out-of-class activities for this course for at least 6 hours per week.</p> <p>Please form study groups. You are encouraged to discuss the approach and understand the problem. However, the write up, programming, and actual solutions to the homeworks are individual work. If you use someone's work for your own, you are committing plagiarism.</p>
Slides, Script:		<p>This is a graduate level, theoretical class, close to mathematics. The instructor will refrain from presenting slides on a regular basis. There is no official script. Make your own script by taking extensive notes. The instructor's handwriting is not faster than yours, so you can essentially copy everything from the blackboard.</p>
Readings:		<p>Students are expected to read and understand the textbook chapters before these chapters are discussed in the lecture.</p>
Computers:		<p>This is a theoretical course. Hence, only some assignments will include actual programming, in Python, C, C++ and/or Java.</p>
Tests and Testing Policy:		<p>Three tests will be given: two mid-term tests and a final. All tests are cumulative, with an emphasis on recent material. No make up tests are given but for documented medical emergencies.</p>

Grading:

Letter grade:

Points range	Grade
[90; 100]	A
[80; 90)	B
[70; 80)	C
[60; 70)	D
[0; 60)	F

Grading breakdown:

Homework/Assignments	15%
Midterm I	20%
Midterm II	20%
Final exam	40%
Attendance	5%

Make-Ups:

There will be no make-up for missed exams or homework deadlines, unless due to a documented medical or family emergency. Providing the right kind of documentation for emergencies is the student's responsibility.

Approximate Course Schedule:

The course schedule of topics and assignments will be posted on the course website.

Academic Honesty:

- Students are expected to conduct themselves in a professional and courteous manner, as prescribed by the Standards of Conduct: <https://www.utep.edu/hoop/section-2/studentconduct-and-discipline.html>
- Submitted work should be unmistakably your own. You may not transcribe or copy a solution taken from another person, book, or other source (e.g., a web page). Professors are required to report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.
- Permitted collaboration: Students may discuss requirements, background information, test sets, solution strategies, and the output of their programs. However, implementations and documentation must be their own creative work. Students are required to document advice received from others and all resources utilized in the preparation of their assignments.
- If academic dishonesty is suspected: The Dean of Students office will be contacted for adjudication. A temporary "incomplete" grade will be issued if their investigation extends beyond the grading period.

Disabilities & Accommodations:

If you have a disability and need accommodations, please contact The Center for Accommodations and Support Services (CASS) at 915-747-5148, or by email to cass@utep.edu. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

COVID19 statement:

- Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors.
- The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area. For more information about the current infection rates, testing, and vaccinations, please visit epstrong.org.

Cell phones:

Please silence your mobile devices or put them into a vibrate mode for the duration of class - they are disruptive for your fellow students. No mobile devices (cell phones, PDAs, laptops etc.) are allowed during the exams and will result in your expulsion from the test.

Class recordings:

The instructor will not take the burden of recording the classes. If the group of students wants to self-organize and record the classes, the instructor is all in favor of this solution. However, in this case, students must abide by federal and state law governing in-class recordings, in particular FERPA, as well as with UTEP policies. When in doubt of the legality of making a recording available to other students in this class, students should first consult with the instructor. **FERPA prevents in-class recordings to be made publicly available.** Students may not share recordings outside of this course. Doing so may result in disciplinary action and legal consequences. The instructor will of course abide by the same laws and will respect your privacy. This means he will not and cannot share class recordings with people not enrolled in the class or TAs/IAs.