

MCS 401 – Computer Algorithms I

Syllabus

Lev Reyzin

Spring 2022

Time and location: M-W-F, 11:00-11:50am, *online for the first two weeks* and at Thomas Beckham Hall (TBH) 180G thereafter (unless a change to UIC policy is announced).

Instructor: Lev Reyzin, SEO 417, lreyzin@uic.edu

Prerequisites: MCS 360 or CS 251. See instructor with any concerns.

Office hours: to be announced

Website: http://homepages.math.uic.edu/~lreyzin/f19_mcs401/

Textbook: J. Kleinberg and É. Tardos. *Algorithm Design*, 1st ed.

Topics: This course will cover the important principles behind the design and analysis of computer algorithms. We will study techniques such as divide-and-conquer, dynamic programming, and greedy methods, as well as algorithms for sorting, searching, graph computations, and pattern matching. We will also discuss the theory of NP-completeness.

Grading: The components are weighted as follows: problem sets are 10%, two in-class midterms are 25%+25% (dates TBD), and the final exam is 40%. All material covered in lecture, assigned in the readings, or included in the problem sets is “fair game” for the exams. Students who receive an 80% or above will receive an “A,” 60% or above at least a “B,” 40% or above at least a “C,” and 20% or above at least a “D.” This scale may be made more generous, especially for undergraduates, at the instructor’s discretion.

Attendance and participation: In addition to the grading policies outlined above, a student's grade might be adjusted *slightly*, e.g. a point, upward for positive contributions through class participation. Moreover, students are responsible for *all material covered in lectures*, in problem sets, and in assigned readings.

Problem set grading and collaboration policy: The goal of the problem sets is for students to *think* about the problems and attempt to answer them. Problem sets will be graded based on *demonstrated effort*. Any answer that seriously attempts to answer a problem will receive full credit, *regardless of correctness*. Collaboration with other students is encouraged. Use of outside resources is discouraged but allowed. Unless otherwise stated, all problem sets will be weighted equally. (Collaboration and outside resources are disallowed on all exams, which are to be completed by students on their own.)

Late work policy: Problem sets are to be turned in by 11am the day they are due on Gradescope. In general, late work will not be accepted. Exceptions must be asked for *in advance of the due date* and will be made rarely, on a case-by-case basis.

Course drop policy: According to the UIC administration, "Only a student can initiate the dropping of a course. The student can drop a course through Banner up through the 10th day of the semester; there is no academic penalty nor does a 'W' appear on the transcript. After the 10th day and through Friday of the 10th week, the student may drop courses by seeing a college academic advisor. These late drops are indicated by 'W' on the transcript and are limited to a total of four for the student's entire UIC career. In emergency situations, the college will entertain petitions for drops beyond the official deadlines. The student must see an academic advisor for guidance and a petition form."

Disability policy: Students with disabilities who require accommodations for access and participation in this course must be registered with the Office of Disability Services (ODS). Please contact ODS a 312/413/-2183 (voice) or 312/413-0123 (TTY).