MCS/CS 401

Computer Algorithms I

Spring 2020

Time and location: M - W - F 11-11:50, Blackboard CS 401, 17454, Lecture

Call numbers: 16607, 17454, 20665, 20666

Instructor: György Turán, 425 SEO, 413-2151, gyt@uic.edu

Office hours: M 3-4, W 4-5, Blackboard Lecture, or by arrangement on Skype

Teaching assistants: Karine Chubarian (kchuba2@uic.edu), Stoyan Dimitrov (sdimit6@uic.edu)

Teaching assistant office hours: Chubarian: Tue 2:00-5:00, Dimitrov: W 2:30-4:30, all in Blackboard, CS 401, 17454, Office hour

Textbook: Cormen, Leiserson, Rivest, Stein: *Introduction to Algorithms*, 3rd Edition, MIT Press, 2009.

Prerequisites: MCS 360 or CS 251.

Topics: The course is about the design and analysis of algorithms:

- algorithms for some important problems (e.g., minimum spanning trees and maximum flows)

- general algorithm design techniques (such as dynamic programming and greedy algorithms)

- methods to analyze algorithms (prove correctness, determine the complexity of an algorithm and the complexity of a problem)

- the foundations of complexity theory (NP-completeness and approximation algorithms).

The course covers Chapters 1-9, 11, 15, 16, 22-24, 26, 34, 35.

Grading: homework 10 %, two midterms 25-25 %, final 40 %. **Update for midterms:** the better of the two midterm scores will be considered for a combined midterm score of 50 %.