

Syllabus: COSC 6260 — Advanced Algorithms

Fall Semester 2021

Instructor: Thomas Schwarz, sj

Website: <https://tschwarz.mscs.mu.edu/Classes/Algorithms/index.html>

Literature

- Cormen, Leiserson, Rivest, Stein: Introduction to Algorithms, MIT Press, (any edition)
- Original articles in Algorithms and Data Structures, available via Google's Scholar search engine. For accessibility, you might need to have a campus IP address.

Contents

Unless we decide otherwise, we will make a review of classical algorithmic theory with emphasis on Mathematical Rigor and evaluation. We will use key-value stores as a running example for modern data structures and algorithms, discussing such topics as cache oblivious, cache aware, multi-threading, memory and storage media, etc.

Learning Objectives:

- Capability to analyze an algorithm in the classical model of computation for speed.
 - Solving recurrences.
- Capability to analyze an algorithm for correctness
 - Induction proofs
- Capability to review and summarize academic papers.

Grading:

Grading is based on the following components.

Quizzes	10%
Precis / Related Work	40%
Homeworks	25%
Final	25%

Quizzes and homeworks are administered via D2L. Only submissions in PDF are accepted. Final Examination will be conducted only online.

Synchronous Long Distance Classes

Because I will be using a pencil on occasion, I have to use my own system, which has had difficulties in the past with zoom. You will have to use a microphone and a web-camera.

Join Zoom Meeting
[https://us02web.zoom.us/j/81258461828?
pwd=WElTYlJxRU8ybkhONyt6ZXlFOEZhUT09](https://us02web.zoom.us/j/81258461828?pwd=WElTYlJxRU8ybkhONyt6ZXlFOEZhUT09)

Meeting ID: 812 5846 1828
Passcode: 834069
One tap mobile
+13126266799,,81258461828#,,,,*834069# US (Chicago)
+16465588656,,81258461828#,,,,*834069# US (New York)

Dial by your location
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 301 715 8592 US (Washington DC)
+1 346 248 7799 US (Houston)
+1 669 900 9128 US (San Jose)
+1 253 215 8782 US (Tacoma)

Class Policies:

You are expected to take part in every class. As according the federal guidelines "merely logging in" is not considered to count as a class attended, you will have to participate in the quizzes in order to have "attended class". According to Marquette policies, I will have to disenroll you if you are missing more than two weeks worth of classes.

Because the class is already given in a synchronized manner, you are encouraged to attend via zoom if you feel sick. Please participate in the "know your neighbor" policy of Marquette.