CS 240e – Data Structures and Data Management

Module 0: Administrivia — Enriched

T. Biedl

Based on lecture notes by many previous cs240 instructors

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What is this course about?

"MergeSort is a recursive algorithm that solves the Sorting Problem in $O(n \log n)$ worst-case time"

- These terms should all be familiar to you.
  (The regular section will give more detailed reviews.)
- This statement should be familiar from CS136/CS145.
- This course: more problems, more algorithms and data structures, more ways to analyze algorithms.

What is the enriched section about?

- Cover everything of cs240r, but faster:
  - Omit most of the review, some near-trivial proofs.
    (Lecture notes have in-depth reviews.)
  - Go faster over material that is likely known
    (heapsort, quicksort, hashing).
- To enrich: More depth and more breadth.
  - Do some proofs deemed too complicated for cs240r.
  - Do more problems/algorithms/ways to analyze.
- Enrichment material is mostly theoretical:
  - More and harder proofs.
  - More attention to details of proofs.
  - Not much difference in difficulty of programming.
- Recommended background knowledge:
  - Love of math and proofs (CS245, MATH239/249)
  - Need probability! (Markov's inequality, Chebyshev's inequality)

Course Information

- Course Webpage

  `http://www.student.cs.uwaterloo.ca/~cs240e/`

  Primary source for up-to-date information for CS 240.
  - Course policies and info
  - Announcements
  - Lecture slides—incomplete coverage
  - Assignments / Solution Sketches
  - Tutorial questions / Solution Sketches

- LEARN
  - Course notes ($\sim$ textbook)—complete coverage
    - ★ Still under development, some errors possible
  - Online teaching material (videos), if required.

- Piazza: `https://piazza.com/uwaterloo.ca/Winter2022/cs240e`
  - A forum that is optimized for asking questions and giving answers.
  - Posting solutions to assignments is considered cheating.
    - ★ Use email for questions about (partial) solutions.

Online teaching

Lectures delivered asynchronous via videos. Two options:

1. Fast videos (∼30min per lecture)
   - Video (quickly) goes over lecture notes.
   - Most videos are from W21 (slight discrepancies)
   - Suitable if you enjoy learning-by-reading.
   - You should read lecture notes in parallel with videos.
2. Slow videos (∼75min per lecture)
   - Video (slowly) goes through all material, usually with DocCam.
   - Similar to what you would have seen in class.
   - Suitable if you enjoy learning-by-watching.

Content should be very similar (if in doubt, follow slow videos).

Course Information

- Instructor: T. Biedl, `biedl [at] uwaterloo.ca`
  - Professor, research area: Algorithms
  - 11th time teaching this course (4th time for enriched section)
- Assistant (ISA): Quan Cheng Taian `cs240e [at] uwaterloo.ca`
  - Main contact for questions, piazza, tutorials
    - ★ Tutorial: Monday 11:30-12:20, MC4060 (recommended, not required)
    - ★ Tutorial-questons on web-page beforehand
    - ★ First tutorial: Mon. Jan 10
- Numerous other ISAs, IAs or TAs (for regular section or grading only)
- Coordinator (ISC): Karen Anderson `kaanders [at] uwaterloo.ca`
  - Main contact for paperwork

Office hours: Some in-person, some on-line; see web page for schedules.

Email: For private communication between students and course staff.

- Send email from your uwaterloo email address

Mark Breakdown (Part 1 of 2)

- Final Exam
  - date period: TBA
- Midterm Exam
  - Mar 3, 4:30pm-6:20pm

} Note: You must pass the *weighted average* of exams to pass the course

- 9 assignments: 5 written, 4 programming
  - You must pass the weighted average of assignments to pass the course.
  - Due on Wednesdays at 5:00pm
    No lates allowed (documented illness $\rightarrow$ credit transferred)
  - Follow the *assignment guidelines*
    (`https://www.student.cs.uwaterloo.ca/~cs240/w22/guidelines.pdf`)
    Marks may be deducted for hard-to-read solutions.
  - Assignment 0 to learn LaTeX (6 bonus marks on assignment 1)

Mark Breakdown (Part 2 of 2)

Weights depend on whether exams are in-person or online.

	Final in-person	Final online
Midterm in-person	Midterm 24% Final 45% Written Ass. 5% each Program Ass. 2% each	Midterm 32% Final 32% Written Ass. 6% each Program Ass. 2% each
Midterm online	Midterm 14% Final 50% Written Ass. 6% each Program Ass. 2% each	Midterm 19% Final 32% Written Ass. 8% each Program Ass. 3% each

There are 4 programming assignments, but only the best 3 will be counted.

Warning and advice

Cheating:

- Standard penalties: a grade of 0 on the assignment you cheated on, and a deduction of 5% from your course grade. You will also be reported to the Associate Dean of Undergraduate Studies.

- Cheating includes not only copying the work of another person (or letting another student copy your work), but also excessive collaboration.
- Do *not* take notes during discussions with classmates. Wait until at least 30 minutes after before writing or typing
- Do *not* look for answers to assignment questions in library or on Web.

Advice:

- Don't fall behind! Read course notes (ideally before class).
- Pay attention! Don't multi-task.
- Seek help! Don't wait too long before asking.