Data Structures and Algorithms

CS141, Fall 2015
Instructor Section 1

- **Elena Strzheletska**
  Lecture: TR 9:10-10:30am, SPTH 2200
  Email: elenas@cs.ucr.edu

- **Office hours:** Tuesday 11:00 – 12:00am, WCH 110
Instructor Section 2

• Katya Mkrtchyan
  Lecture: TR 8:10-9:30am, SPTH 2200
  Email: mkrtchyk@cs.ucr.edu

• Office hours: Thursday 10:40 – 11:40am, WCH 110
Discussion Sessions and Teaching Assistants

Wednesday 5:10-6:00pm, WAT 2240
TA: Parth Patil
e-mail: ppati002@ucr.edu

Thursday 8:10-9:00am, PRCE 3374
Friday 11:10-12:00pm, PRCE 3374
TA: Amirali Darvishzadeh
e-mail: darvish@cs.ucr.edu
Attendance

• Attendance of lectures and discussion sessions is not mandatory but **recommended**
• possibility of in-class extra credit exercises (unannounced)
General info

• Course homepage
Syllabus, slides, homework & solutions

• iLearn for grades and announcements
Office Hours (WCH room 110):

Monday 12:00-1:00pm (Parth)
Tuesday 11:00-12:00pm (Elena)
Tuesday 2:30-3:30pm (Amirali)
Thursday 10:40-11:40am (Katya)
Course Format

- Two 80-minute lectures/week
- One hour discussion/week
- Five written assignments (homework)
- Four exams (in class, closed book/notes)
  - Three quizzes
  - One final (during finals’ week)
Homework Assignments

Five written homework assignments

1. Can be done individually or in groups of two

2. Must be prepared with LaTeX
   - handwritten assignments or assignments in Word or other word processors will not be accepted
   - LaTeX templates for hw and other help with LaTeX will be available
   - homework papers must be well written, in grammatical English, self-contained, and aesthetically formatted

3. May include some programming (Python)

4. Upload the pdf file into iLearn and turn-in a paper copy in class
Homework Assignments

4. Due
   Thursday (Tuesday) 8:00am (iLearn)
   Thursday (Tuesday) at the beginning of lecture (hard copy)
   20% off for not submitting hard copy

5. Late submission - 20% off, must be submitted by
   Friday 11:00am (iLearn)
   Friday at the beginning of discussion (hard copy),
   hand it to the TA

Electronic version and hard copy should be the same.
If no electronic copy submitted – 0%.
Final Exam

Saturday, December 5, 11:30am – 2:00pm

!?!
Grading

- 5 homework (h) – 20%
- Quiz 1 \((q_1)\) – 10% (30 min)
- Quiz 2 \((q_2)\) – 15% (50 min)
- Quiz 3 \((q_3)\) – 15% (50 min)
- Final \((f)\) – 40%

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CS 14 Background

• Data Structures: Arrays, Lists, Stacks, Queues, Dictionaries, Hash Tables, Search Trees, Priority Queues (heaps), Graphs

• Algorithms: Sorting, Searching
CS 111 Background

- Asymptotic notation (upper, lower, tight bounds)
- Proofs (direct, contradiction, induction)
- Solving recurrence relations
- Trees, graphs and directed graphs
Textbook (required)


PDF available at: 
Reference

Overview

- Week 1: Course overview
- Week 2: Discrete math for algorithm analysis
- Week 3: Analysis of recurrence relations
- Week 4: Divide and conquer
- Week 5: Greedy approach
- Week 6: Dynamic programming
- Week 7: Graphs, directed graphs and weighted graphs
- Week 8: Graph traversal (DFS/BFS), connectivity
- Week 9: Minimum cost spanning tree, single-source shortest path
- Week 10: All-pairs shortest path