Course Info

- **Instructor**
  Mehdi Kargar
  Office: Lassonde Building-2057
  Email: kargar@gmail.com
  Office hours:
    Wednesday, 14:00-16:00
    By appointment in special cases
- **Textbook**
  Data Structures and Algorithms in Java (5th edition)
  by M. T. Goodrich and R. Tamassia
  John Wiley and Sons, 2010
    By appointment in special cases
- **The slides are based on Prof. Nguyen's slides.**

Course Info

- **Grading Scheme**

  15% – 4 to 5 assignments

  30% – Midterm

  55% – Final exam

- **Web site**

  http://www.cse.yorku.ca/course/2011

Assignments

- All assignments will be submitted electronically using the "submit" command.
- Late submissions is not accepted.
- You may submit a file several times.
  - Submit your work gradually before the deadline to avoid last-minute problems.
- Report an error in your mark or request a re-marking within 2 weeks after an assignment is returned.

Test and Exam Policy

- You are allowed to miss a test/exam only under extraordinary circumstances.
- There is NO make up test. The weight of a missed test will be transferred to the final exam.
- All assignments, test and exam are individual work. Plagiarism and cheating are not tolerable.
- If the reason is sickness, your doctor must fill in the Attending Physician's Statement form. Only this form, completely and properly filled, will be accepted.

Etiquettes

- Be on time.
- Turn off cell phones while in class.
- Do not distract or bother your classmates by talking to others. You may be asked to leave the classroom if your conversation disrupts the lecture.
- If you have questions, feel free to ask the instructor in the class or after the lecture.

About This Course

- **CSE 1020**: students are **clients** who use a given API (reading API specs, creating programs that use them).
- **CSE 1030**: students are asked to **implement** a given API.
- **CSE 2011**: students are asked to **design** and build an API.
  - "Build" = coding and testing thoroughly

What will we learn?

- Data structures
  - Organizing and storing data
    - Ex: arrays, lists, stacks, queues, hash tables, heaps, trees, graphs.
  - Manipulating data
    - Ex: arrays, lists, stacks, queues, hash tables, heaps, trees, graphs
- Algorithms
  - Step-by-step procedure for performing specific task
    - Ex: sorting, searching

Course Outline

- Analysis tools and basic techniques
  - Running time calculations
  - Growth rates
  - Asymptotic notations: O, Ω, Θ, o
  - Recursion
  - Divide and conquer approach
- Sorting
  - Selection sort
  - Merge sort
  - Quick sort

Course Outline

- Linear structures
  - Arrays vs. linked lists
  - Stacks
  - Queues
  - Double-ended queues
- Trees
  - Binary trees
  - Binary search trees
  - AVL trees
  - Heaps
- Hash tables
- Graphs
  - Depth first search
  - Breadth first search

Homework

- Read all the pages and links on the course web site.

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