

Course Info

- **Instructor**

U.T. Nguyen

Office: CSEB-2024

Email: utn@cse.yorku.ca

Office hours:

Tuesday, 14:30-15:30

Thursday, 12:00-12:45

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

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Course Info (cont.)

- **Grading Scheme**

15% – 4 to 5 assignments

30% – Midterm

55% – Final exam

- **Web site**

<http://www.cs.yorku.ca/course/2011>

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Test and Exam Policy

- You are allowed to miss a test/exam only under extraordinary circumstances.
- 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.
- 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.

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Assignments

- All assignments will be submitted electronically using the "submit" command.
- We do not accept late submissions.
- 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.
- We use [MOSS](#) to detect software plagiarism.

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Useful Suggestions

- When sending emails to the instructor or TA, please indicate "CSE 2011" in the subject line (e.g., "CSE 2011 - Lecture notes unreadable").
- For questions related to course materials, it is best to come to the office hours. Email is not a good way to explain the materials.
- Read the lecture notes and the textbook before and again right after each lecture.
- Work on suggested homework problems.

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Etiquettes

- Be on time.
- Turn off cell phones and pagers while in class.
- Do not distract or bother your classmates by talking to your neighbor(s). 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 class or after the lecture.

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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.

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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

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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

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Course Outline (cont.)

- 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

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