Data Structures and Algorithms
CS526 A1, Fall 2018

- **Course Format**: On Campus
- **Time and Location**: Monday 6:00 – 8:45 PM, MCS B23

- **Instructor**: Jae Young Lee
- **Office**: Room 250, 808 Commonwealth Ave.
- **Phone**: 617-358-5165, **E-mail**: jaeylee@bu.edu
- **Office Hours**: 4:00 – 5:15 PM, Monday and Wednesday, and by appointment

- Course Objectives

  Upon successful completion of this course, students will be able to:

  1. Describe and illustrate fundamental data structures.
  2. Use fundamental data structures to support the implementation of algorithms.
  3. Given a problem definition, develop an algorithm to solve the problem.
  4. Write an algorithm using a pseudocode.
  5. Illustrate the execution of a pseudocode of an algorithm using a sample input.
  6. Analyze the performance of an algorithm.
  7. Implement a given algorithm using a high-level programming language.
  8. Solve computational problems using algorithms.

- This course is a core course for MSSD and an elective course for MSCIS.
- **Prerequisites**: MET CS300 and either MET CS520 or MET CS521, or instructor consent.

- **Text**: Michael T. Goodrich, Roberto Tamassia, and Michael T. Goldwasser, "Data Structures and Algorithms in Java," John Wiley & Sons, 6th Edition, January 2014.

- **Courseware**: Blackboard Learn

- **Grading**:
  - Midterm: 30%, Final: 30%
  - Homework: 30%
  - Project: 10%

- **Letter Grade**:

$90 \le G < 94$: A-	$94 \le G$: A,	
$80 \le G < 83$: B-	$83 \le G < 87$: B	$87 \le G < 90$: B+
$70 \le G < 73$: C-	$73 \le G < 77$: C	$77 \le G < 80$: C+
$60 \le G < 70$: D		
$G < 60$: F		

- **Assignment**: There will be 10 homework assignments (the number of assignments is subject to change according to the actual progress of the class) and all assignments include Java programming.

- **Project**: This is a programming project. Details will be discussed in the class.

- **Academic Integrity Policy**
  - Cheating and plagiarism will not be tolerated in any Metropolitan College course. They will result in no credit for the assignment or examination and may lead to disciplinary actions.
  - Please take the time to review the Student Academic Conduct Code: http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html.
  - This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes.
- **Attendance and Absence**: Attendance is not required but strongly encouraged. If a student misses a class it is his/her responsibility to catch up with the material discussed during the missed class.

- **Late Policy**
  - All assignments are due at the beginning of the class on the due date.
  - A late homework is subject to a penalty of 10% per day. An exception may be made if a student is in an unusual/urgent situation and obtains permission from the instructor before the due date.

- **Make-up Exam**
  - A make-up examination for the midterm can be arranged only when a student has an emergency (e.g., a medical emergency or an urgent family matter). Students may need to provide the instructor with an appropriate document (such as a letter from a physician).
  - There will be **no make-up exam for the final exam**. If a student cannot take the final exam on the designated day, she/he will receive an incomplete grade.

- **Tentative Schedule**
  - The schedule is subject to change according to the actual progress of the class.
  - Students are strongly encouraged to read book chapters assigned for each lecture before coming to the class.

Week	Date	Lecture	Reading Assignment (Book chapters)
1	9/10	Java review	1, 2
2	9/17	OO design, fundamental data structures	2, 3
3	9/24	Fundamental data structures, algorithm analysis	3, 4
4	10/1	Recursion	5
5	10/8	**No class**	
6	10/9 (**Tuesday)**	Stacks, queues, and deques	6
7	10/15	List and iterator ADTs, trees	7, 8
8	10/22	**Midterm**	
9	10/29	Trees, priority queues	8, 9
10	11/5	Maps and hash tables	10
11	11/12	Search trees	11
12	11/19	Sorting and selection	12
13	11/26	Greedy algorithm, dynamic programming	13
14	12/3	Graph algorithms	14
15	12/10	P and NP	Note
16	12/17	**Final Exam**	

- **Communication**
  - All official announcements will be made in the class.
  - All assignments will be posted on the class web page.
  - **Important:** The primary method of communication is through in-class announcements. The class web page is only supplementary. So, if you miss a class you need to talk to a friend in the class or contact me to find out whether there was any important announcement.
  - **Email communication**: When it is necessary to communicate to you, I will send an email to your BU email account. So, you need to check your BU email regularly (e.g., once a day).