Data Structures and Algorithms
CS526 A1, Spring 2025

- **Course Format**: On Campus
- **Time and Location**: Tuesday 6:00 – 8:45 PM, CAS 228

- **Instructor**: Jae Young Lee
- **Office**: Room 303, 1010 Commonwealth Ave.
- **Phone**: 617-358-5165, **E-mail**: jaeylee@bu.edu
- **Office Hours**:
  - 3:30 – 4:30 PM Tuesday and Thursday, or by appointment
  - Students can meet me in person (in my office) or via zoom
  - No office hours during the exam weeks

- Course Description

  This course covers and relates fundamental components of programs. Students use various data structures to solve computational problems and implement data structures using a high-level programming language. Algorithms are created, decomposed, and expressed as pseudocode. The running time of various algorithms and their computational complexity are analyzed.

- 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.

- **Prerequisites**:
  - MET CS300 and either MET CS520 or MET CS521, or instructor consent.
  - Must have knowledge of or experience in at least one high-level programming language, such as Java, C++, C#, Python, etc.

- **Text**: One of the following two depending on which language you will use:
  - Michael T. Goodrich, Roberto Tamassia, and Michael T. Goldwasser, “Data Structures and Algorithms in Java,” Wiley, 6th Edition, January 2014.
  - Michael T. Goodrich, Roberto Tamassia, and Michael H. Goldwasser, "Data Structures and Algorithms in Python," Wiley, March 2013.

- **Courseware**: Blackboard

- **Grading**:
  - Midterm: 25%, Final: 35%
  - Homework: 40%

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

  Note: Course grades will not be automatically rounded up. For example, a course grade of 93.9 will receive a letter grade A-, not A.

- **Assignment**: There will be 11 homework assignments (the number of assignments is subject to change according to the actual progress of 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 study the material discussed during the missed class.

- **Late Policy**
  - All assignments are due at the beginning of the class on the due date.
  - If you submit an assignment late, a penalty of 10% per day will be imposed.
  - If a student obtains a permission from the instructor or the TA **in advance**, a late penalty may be waived.

- **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 must contact me **before the exam** and may need to provide 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	Book Chapter (Java / Python)	Homework
1	1/21	Algorithm analysis	4 / 3	HW1
2	1/28	Recursion	5 / 4	HW2
3	2/4	Linked list	3 / 7	HW3
4	2/11	Stacks, Queues, and Deques	6 / 6	HW4
5	2/18	**No class**		
6	2/25	Trees	8 / 8	HW5
7	3/4	Priority queues	9 / 9	HW6
8	3/11	**No class (Spring Recess)**		
9	3/18	**Midterm**		
10	3/25	Maps and Hash tables	10 / 10	HW7
11	4/1	Search trees	11 / 11	HW8
12	4/8	Sorting and Selection	12 / 12	HW9
13	4/15	Dynamic programming, Greedy method	13 / 13	HW10
14	4/22	Graph algorithms	14 / 14	HW11
15	4/29	P and NP	Note	
	TBD	**Final Exam**		

- **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, at least once a day.
  - When you send an email to me, include "CS526 A1" in the subject of your email.