EC330 – Applied Algorithms and Data Structures for Engineers
Spring 2021

Lecture: Zoom, Tue/Thu 9:00 am – 10:45 am ET
Discussion: Attend one of the following two sections
   ENG 245, Fri 11:15 am – 12:05 pm ET
   ENG 245, Fri 12:20 pm – 1:10 pm ET

Staff Information:
Instructor:
   Wenchao Li, wenchao@bu.edu (Write ‘EC330-Spring2021:’ in the subject line)
   Office hours:
      • Tue 10:45 am – 11:00 am ET
      • Wed 4:30 pm – 5:00 pm ET
      • Thu 10:45 am – 11:00 am ET
Graduate Teaching Assistant:
   Shiza Ali, shiza@bu.edu
Undergraduate Teaching Assistants:
   Khoa Tran, kttran@bu.edu
   Yan Chen, ychen01@bu.edu
   Dev Bhatia, devb@bu.edu
   Nafis Abeer, nafis@bu.edu
Details about office hours with teaching assistants will be posted on Blackboard/Piazza.

Course Description:
A good understanding of algorithms is essential to most engineering tasks today. Correct
implementations of algorithms have allowed the Internet to grow unbounded, computer
games to function in real time, and databases to be accessed quickly (and incorrect
implementations have done the opposite!). We will begin the course with a serious
introduction to algorithmic analysis, followed by a treatment of simple data structures
and sorting algorithms. We will continue with more sophisticated data structures and
graph algorithms, and end with advanced data structures as time permits. Throughout the
course we will discuss the many applications of the data structures and algorithms
considered, and homework will focus on theory as well as C++ implementations. EC327
and MA193 (recommended) are the formal prerequisites for this class.

Textbook: None

Reference Texts:
   • Cormen, Leiserson, Rivest and Stein, Introduction to Algorithms (Third Edition),
   • Dasgupta, Papadimitriou and Vazirani, Algorithms (First Edition), McGraw-Hill
Online References:
- www.cplusplus.com

Discussion Sections:
The topics covered include review of course materials, additional examples, and homework tips.

Grading:
All grades will be curved according to the class median. Thus, it is your relative score (compared to the rest of the class) that really matters, rather than your absolute score. For a course at this level, I expect to center the median at a B/B-, but the final grade will depend on my assessment of the class as a whole.
- Homework (40%) – 8 in total
- Online timed quizzes (30%) – 5 in total
  - Quiz 1: Feb 16
  - Quiz 2: Mar 8
  - Quiz 3: Mar 22
  - Quiz 4: Apr 5
  - Quiz 5: Apr 21
- Take-home final (30%) – May 3

Homework:
Homework assignments will be posted on Blackboard. They must be turned in online on Gradescope. You will be given one ‘late day’ which you must use as a whole. This is intended to handle a contingency that you might have. If you want to use this ‘late day’, you must write it clearly at the beginning of your submission. Other than this ‘late day’, no late homework will be accepted, except for legitimate excuses backed by written and dated documentation.

Homework assignments will be completed in C++. Unless otherwise stated, you may use any development environment you wish (e.g Netbeans, Eclipse, XCode, Visual Studio), as long as it is fully ANSI C++ compatible. You should make sure that your code compiles and runs on Gradescope. Sample test cases will be provided for sanity check.

Policy on Collaboration:
We take cheating and plagiarism very seriously. All homework assignments are supposed to be individual assignments. We will run code clone detectors on your code. You may use other reference texts and web sources, subject to the following strict conditions:
1. You must clearly acknowledge all sources at the top of your homework.
2. You must write all answers in your own words, and you may not share code with any of your classmate.
3. You must be able to fully explain your answers upon demand.
You may not collaborate in any way on exams or quizzes. Failure to meet any of the above conditions will be considered cheating in this class.
BU’s Academic Conduct Code applies: https://www.bu.edu/academics/policies/academic-conduct-code/