

GMU Spring 2018

INFS 519 - Program Design and Data Structures

Instructor: Hal Greenwald (hgreenwa@gmu.edu)
Office Hours: after class or by appointment
Tuesday, 7:20 – 10:00pm Art and Design Building L008

Course Description

Study of the fundamentals of data structures and algorithms applied in programming solutions to application problems. The course stresses programming in a modern high-level language.

Prerequisites

The prerequisite for this course is SWE-510 or its equivalent. You should have a semester's worth of basic programming in Java, including program design, coding, and debugging techniques.

Textbooks

Mark Allen Weiss, Data Structures & Problem Solving Using Java, Addison-Wesley (4th ed. is latest).

Topics to be covered and schedule

The following topics will be covered in approximately the order listed below. Lecture notes will be posted under Blackboard Announcements prior to each class.

| Topic | Textbook Chapter(s) |
|----------------------------------|---------------------|
| Java – review of selected topics | 1 - 4 |
| Algorithm Analysis | 5 |
| Recursion, Sorting Algorithms | 7, 8 |
| Array, ArrayList, Stacks, Queues | 15,16 |
| Linked Lists | 17 |
| Trees | 18 |
| Binary Search Trees, B-Trees | 19 |
| Huffman Encoding | 12.1 |
| Graphs | 14 |
| Hash Tables | 20 |
| Special Topics | TBD |

Final Exam – 5/15/2018, 7:30 pm



GRADING POLICY

Your course grade will be an aggregate of the following items:

- Homework (40 points): 4 Java programming assignments
- Exam 1: (20 points)
- Exam 2: (20 points)
- Final examination – cumulative: (20 points)

Grading:

- A+ is at least 97.5 points
 - A: is at least 90 points
 - B+: is at least 87.5 points
 - B: is at least 80 points
 - C: is at least 70 points
 - D: is at least 60 points
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Honor Code

The class enforces the **GMU Honor Code**. Violations of academic honesty will NOT be tolerated.

Both the University and the Computer Science Department have honor codes you are expected to adhere to: <https://oai.gmu.edu/mason-honor-code/> and <http://cs.gmu.edu/resources/honor-code/>. You are bound by these honor codes.

Disability Statement

If a disability or other condition affects your academic performance, please document it with the Office of Disability Services.

Campus Resources

Computer Labs – there are several freely available computer labs on campus, for hours and locations please see: <http://doit.gmu.edu/students/computer-labs/computer-lab-locations/>

Office of Disability Services - <http://ds.gmu.edu>

Counseling and Support Services - <http://caps.gmu.edu>

English as a Second Language (ESL) Writing Support - <http://writingcenter.gmu.edu/tutoring/esl-writing-support>

Working together vs. individually

For this class homework and exams require individual work. Study groups are *encouraged*, but homework solutions and write-ups **MUST** be the result of individual effort. Similarly, study groups for examinations are encouraged. However, exams are individual effort and closed book.

Class Policies

Blackboard is used for class announcements, assignments, and other related information.

Please show up on time – late arrivals can be disruptive.

Mute cell phones. If you must take a phone call during class please take it outside the room.

No web surfing or texting during class – it can be disruptive to those around you.

No make-up exams and, in general, no late assignments will be accepted unless otherwise announced.