INFS-519-001: Program Design and Data Structures (Fall 2017)

(syllabus v1.0 -08/08/2017)

Instructor: Gene Shuman

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.

Class Time and Location

Thursday, 7:20 – 10:00 pm
David King (DK) Hall, 1006

Instructor

Gene Shuman
Email (the best way to contact me): gshuman@gmu.edu / gshuman [AT] gmu [DOT] edu
(Put "INFS519:*your name*" in the email subject line)
Phone: 703-359-0836 (2nd best)
Office Hours: Before or after class, or by appointment

GTA

TBD

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.

Topic	Textbook Chapter(s)
Course introduction	none
Java – review of selected topics as needed	1 - 4
Algorithm Analysis	5
Sorting Algorithms	8
Array, Array Lists, Stacks, Queues	16
Lists	17
Trees	Ch 18
Recursion	7
Binary Trees	18
Binary Search Trees, B-Trees	19
Huffman Encoding	12.1
Graphs	14
Hash Tables	20
Special Topic(s) – TBD/as time permits	TBD

The class will meet the following dates:

1. August 31
2. September 7, 14, 21, 28
3. October 5, 12, 19, 26

4. November 2, 9, 16, 30 (note: no class November 23, Thanksgiving holiday)
5. December 7
6. December 14 – Final Exam, same room, 7:30 – 10 pm

Exams and Assignments

5-7 assignments, predominantly programming in Java
3-4 quizzes – closed book, closed notes
1 or 2 exams during the semester – closed book, but one sheet 8.5x11/A1 sheet of notes allowed
Final Exam – 12/14/2017, 7:30 pm – absolutely required and the date is immovable
(closed book, but two sheets of notes allowed)

Grading weighting scheme

Assignments/Projects: 20%
Quizzes – 10% (collective, equal weight for each)
Exams during the semester: 30% (15% each if two are given)
Final Exam: 40%

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: http://oai.gmu.edu/the-mason-honor-code-2/ 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.
One conversation at a time unless I ask you to work on a short group exercise during class.
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.