Course title: Data Structures, Summer 2018

Instructor: Dr. R. Paul Mihail, 2119 Nevins Hall, Email: **rpmihail@valdosta.edu**

Class meeting times and location: Online

Office Hours: Nevins Hall 2119, MTWR 11:00am - 12:00pm.

Required Textbook (free eBook): Data Structures with zyLabs. To subscribe, please complete the following steps:

1. Sign in or create an account at learn.zybooks.com

2. Enter zyBook code **VALDOSTACS3410MihailSummer2018**

3. Subscribe

Software and Hardware: You need a modern browser and a high speed internet connection.

Course Description: Trees, graphs, and other forms of data structures and their implementations. Emphasizing abstract data types; static memory allocation vs. dynamic storage allocation; searching, hashing, and sorting methods; algorithm analysis.

Learning Outcomes: Students will understand basic concepts and techniques from computer graphics. More specifically students will:

1. Use basic algorithm analysis tools including both theoretical and empirical methods.

2. Design and implement common data structures such as arrays, linked lists, stacks, queues, priority queues, trees, heaps, and hash tables.

3. Design and implement systems that utilize common data structures.

4. Design and implement linear, binary, and hash searches.

5. Design and implement efficient sorting techniques.

6. Make appropriate data structure and algorithm design decisions with respect to program size, execution speed, and storage efficiency.

7. Select and use the most appropriate data structure from the Java API for a particular programming task.

Course Prerequisites: CS 1302 and CS 2620 with a grade of C or better. It is highly recommended that students who take this course have strong Java programming skills.

Assessment:
The grade for this course will be calculated as follows:

- Participation and challenge activities ($\bar{x}_1$): 20%

- Lab assignments ($\bar{x}_2$): 30%

- Midterm exam ($\bar{x}_3$): 25%

- Final exam ($\bar{x}_4$): 25%

In practice, the formula for determining the final grade, a weighted average, (G) is as follows:

$$G = 0.2 \times \bar{x}_1 + 0.3 \times \bar{x}_2 + 0.25 \times \bar{x}_3 + 0.25 \times \bar{x}_4 \tag{1}$$

where x_1, x_2, x_3, x_4 are the averages for the participation and challenge activities, lab assignments, and 2 equally weighted exams.
Grades will be assigned according to the following scale:

$$90\text{-}100\% = \text{A}$$
$$80\text{-}89.99\% = \text{B}$$
$$70\text{-}79.99\% = \text{C}$$
$$60\text{-}69.99\% = \text{D}$$
$$\text{Below } 60\% = \text{F}$$

Exams:

- Midterm exam: 07/02/2018.

- Final exam: 07/26/2018.

Academic Honesty: Cheating consists of getting any form of unfair academic advantage. Cheating is strictly forbidden and I will purse the maximum penalties allowed by the University, which includes a possibility for expulsion, but most likely will result in a permanent mark on your transcript accompanied by an F in this course.

You will be asked to write programs and submit the code. Often students have questions about what is and what is not considered cheating. Below are a few bullet points I expect to be followed in my course:

- Google Searches. 1) You may often find a complete solution to a programming prompt online. Turning a complete solution that someone else wrote, with or without attribution, will be considered cheating and the penalty is failure of this course along with a letter to the registrar. 2) You may find snippets (parts) of code that you integrate into your solution. This is acceptable ONLY with attribution (at least 3 of the 4 w's: who, what, when and where) in your code AND write-up. Using snippets of code is only acceptable if they consist of less than one third of the total program. Failure to attribute a snippet of code will result in a 0 on the assignment for the first offense and a failure in the course for the second offense.

- Classmates/friends/tutors. Programming assignments are designated as individual work. That means it is forbidden to share code or work together on them with your classmates. You can, however, discuss high-level ideas, but they have to be documented. Failure to do so will result in an F on the assignment. Documenting high-level idea exchange can be made as a note in the assignment write-up (who/when/what/where). Sharing code with a classmate will result in an F on the assignment for the first offense and a failure of the course on the second documented offense.

Withdrawing:

If you decide to leave the class, please do it officially. There is a date on the Academic Calendar past which you are not allowed to drop for academic reasons. We'd much rather give a W grade than an F. Don't just stop coming to class - you WILL get an F! Take care of your transcript! All policies associated with this course are subject to revision. Reasonable notification will be provided to students prior to any major changes.

New Withdrawal Policy (5 W Policy): Effective Fall 2010, all undergraduate students are limited to five course withdrawal (W) grades for their entire enrollment at Valdosta State University. Once a student has accumulated five W grades, all subsequent withdrawals (whether initiated by the student in BANNER or initiated by the instructor on the proof roll) will be recorded as WF. The grade of WF is calculated as an F for GPA purposes. To get more details about this policy, students are strongly recommended to check the following link:
http://www.valdosta.edu/academic/WithdrawalPolicy.shtml

Extra Help: Do not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course. There are also tutors available Monday through Friday, see Mr. Said Fares (office in 1126 Nevins Hall) for more information. There is also the Student Success Center on campus located on the ground floor of the Langdale Residence Hall. The Student Success Center offers free one-on-one tutoring for core courses, success workshops, etc. You can find more information at http://www.valdosta.edu/academics/student-success-center/.

Attendance Policy: Please keep in mind that attendance is extremely important for this course. You are expected to show up for lectures and participate. In case you have to miss class, please make sure you ask for notes or see your professor. If you have a valid university excuse, please notify your professor as soon as possible.

Accommodation for Disabilities: If you have a documented disability that requires academic accommodations, please contact your professor as soon as possible. In order to receive accommodations in this course, you must provide a Letter of Accommodation from the Access Office for Students with Disabilities located in Farver Hall. The phone numbers are 229-245-2498(V/VP) and 229-219-1348(TTY). Accommodations can be made for all parts of the course. We only make special arrangements for class activities after we receive the letter.

Student Opinion of Instruction: At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available on BANNER.

Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous to instructors/administrators. Instructors will be able to view only a summary of all responses three days after they have submitted final grades. While instructors will not be able to view individual responses or to access any of the data until after final grade submission, they will be able to see which students have or have not completed their SOIs, and student compliance may be considered in the determination of the final course grade. These compliance and non-compliance reports will not be available once instructors are able to access the results. Complete information about the SOIs, including how to access the survey and a timetable for this term is available at http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml.

Title IX Statement: Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: the Director of the Office of Social Equity, titleix@valdosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31698, 229-333-5463.