

**CSCI 6305.01 Foundation of Algorithms and Programming Languages in Computer Science**  
**SPRING 2020**

**Instructor:** Dr. Andres Figueroa  
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**OH:** MW 10:45-11:45am, M 4:30 – 5:30 pm, or by appointment  
**Classroom:** EIEAB. 1.212  
**Class Time:** M 6:30 - 9:00pm

**Textbook and other materials:** Java How to Program Early Objects, by Deitel and Deitel, Eleventh Edition, Prentice-Hall, 2015, ISBN-13: 978-0-13-474335-6

**Description:** In depth analysis of computing algorithms and data structures for implementation in the context of software engineering design using structured programming languages. Data structures and algorithms will be the unifying perspective, integrating additional elements of programming languages. Java will be used as the demonstration language for algorithms and data structures. Topics for data structures will include linked lists, stacks, queues, recursion, search and sort algorithms, hashing, binary trees, and graphs.

**Course web site:** <http://my.utrgv.edu/>

**Learning Outcomes:** Upon successful completion of this course, students will be able to:

1. Specify data structures and operations associated with abstract data types.
2. Given a scenario, describe the abstract data types that could be created
3. Identify, implement, and use the following data structures as appropriate for a given problem: lists, implemented as arrays or linked lists, stacks, queues, binary trees, and simple hashes.
4. Judge which data model (list, tree, graph, or set) is appropriate for solving a problem
5. Justify the choice of a data structure to solve a problem based on issues such as time, space, and of the data structure.
6. Judge which sorting algorithms (insertion, selection, merge sort, heap sort, quick sort, radix) is appropriate for solving a problem.

**Grading and Policies:** Programming Assignments (25%), Homework (25%), Quizzes (25%), and Final (25%). Your final grade will be based on the following scale: A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, and F: 0-59%

**Late Work Policies:** Student's work turned in within 48 hours after the due date will lose 10% for the first 24 hours and 30% after. Work turned in after 48 hours will receive no credit. Programs will be graded on correctness, efficiency, quality, documentation and style. **All programming assignments are expected to be the student's own work (see Important note on academic dishonesty below).**

**Important Dates:** The UTRGV academic calendar and final exam schedule can be found at <https://my.utrgv.edu/home> at the bottom of the screen, prior to login. Some important dates for Spring 2019 include:

Jan 13	First day of class for full semester
Jan 16	Last day to add a class for spring 2020 semester
Jan 20	MLK Holiday – No classes
Mar 9 – 14	Spring Break, <b>no classes</b>
Apr 9	Last day to drop (DR grade); will count toward the 6-drop rule
Apr 10 – 11	Easter holiday, <b>no classes</b>
April 30	Study Day, <b>no classes</b>
Monday, May 4, 6:30pm – 8:15pm	Final Exam
May 8 – 9	Commencement Exercises

**Mandatory Course Evaluation Period:** Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<https://my.utrgv.edu/home>); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available:

Feb 19 – Feb 25 for Module 1 courses

Apr 15 – Apr 21 for Module 2 courses

Apr 10 – Apr 29 for full spring semester courses

**Attendance and late work policy:** Students are expected to attend all lectures and to study the text in preparation to contribute to discussions. Most of the information related to the course will be available from the course web site. The student is expected to access it at least twice a week to get information about course policies, assignments, homework, etc. All information posted at the course web site is assumed to be known by the student 48 hours later. Homework assignments turned in within 48 hours after the due date will lose 10% per 24 hours late. No credit will be given for work turned in after 48 hours.

**Important Note on Academic Dishonesty:** As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

All assignments and exams must be the student's own work. Students are encouraged to help one another and work in groups to understand the materials presented in class and the books, but both giving and receiving major sections of programming code and exam solutions are considered cheating. **Cheating will be punished severely.** For those who don't want others' cheating to cheapen your own hard work and hurt your grade -- send an anonymous cheating reporting to the instructor via email. When a cheating is caught, zero marks will be given the cheated work, and the case will be forwarded to the Department chair and beyond if necessary. Students are also encouraged to seek help with identifying syntax and run-time errors from the instructor during office hours.

**Sexual Harassment, Discrimination, and Violence:** In accordance with UT System regulations, your instructor is a "Responsible Employee" for reporting purposes under Title IX regulations and so must report to the Office of Institutional Equity & Diversity ([oi@utrgv.edu](mailto:oi@utrgv.edu)) any instance, occurring during a student's time in college, of sexual misconduct, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at [www.utrgv.edu/equity](http://www.utrgv.edu/equity), including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like confidential assistance, or have questions, they can contact OVAVP (Office for Victim Advocacy & Violence Prevention) at (956) 665-8287, (956) 882-8282, or [OVAVP@utrgv.edu](mailto:OVAVP@utrgv.edu).

**Course Drops:** According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

**Note to students with disabilities:** Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive academic accommodations should contact Student Accessibility Services (SAS) for additional information. In order for accommodation requests to be considered for approval, the student is responsible for providing sufficient documentation of the disability to SAS and participating in an interactive discussion with SAS staff. Accommodations may be requested at any time but are not retroactive. Please contact SAS early in the semester/module for guidance. Students who experience a broken bone, severe injury, or undergo surgery may also be eligible for temporary accommodations.