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| **Computer Science CSCI 4310/6323, Spring 2021** | **Dr. Bin Fu** |
| **Term (Spring 2021)** | (956) 665-3635 and bin.fu@utrgv.edu |
| 6:30pm-9pm Thursday Online | Office hours : 1pm-4pm (M&R)IEASB 3.242 |

**Course Description and Prerequisites**

This course includes the following topics: 1. Recursive Equations, 2.Divide and Conquer Methods, 3. Dynamic Programming Methods, 4. Basic and Advanced Data Structures, 5. Graph Algorithms, 6. Approximation Algorithms, 7. Randomized Algorithms, and 8.NP-Complete Theory. The prerequisite is CSCI 3333 or consent of the instructor.

**Welcome Statement**

Algorithm design is a fundamental part of computer science. A person will solid algorithm skill can easily switch from one area to another area of computer science since many challenging computational problems can be eventually transformed into algorithmic problems.

**Teaching Philosophy**

The instructor will show efficient algorithms are developed from some simple principles, and analyzed via rigorous mathematical methods. Our students will get the experience of the interaction between software and algorithm design.

**Learning Objectives/Outcomes for the Course**

After completing this course, students should be able to:

* Understand some important methods in developing algorithms.
* Understand how to analyze the computational time of algorithms.
* Build solid skills for designing efficient algorithms.
* Develop the skills to determine the hardness of a computational problem.

**Learning Objectives for Core Curriculum Requirements**

CSCI 6323 is one of the core courses in the Computer Science M.S. program. It brings some advanced topics of algorithms after undergraduate students finish data structure class.

**Designations**

Algorithm design is one of the crucial foundations for software design, which is based on data structure and algorithm. As one of the cores courses in Computer Science Master program, CSCI 6323 (Algorithm Design) is one of the three subjects in the exit exam of M. S. program in Computer Science Department.

**Grading Policies**

There will be midterm for 20% of the grade, final for 25% of the grade, 4-5 assignments for 35% of the grade in total, exercises and attendance in the class for 20% of the grade.

**Textbook and/or Resource Material**

**I**ntroduction to Algorithm, by T. Cormen, C. Leiserson, R. Rivest and C. Stein.

**Other Course Information**

In this section, please provide any other information that is pertinent to your course and your expectations for students.

***UTRGV Policy Statements***

The UTRGV disability accommodation, mandatory course evaluation statement and sexual misconduct statement are required on all syllabi. Additional policy statements are optional, such as those covering attendance, academic integrity, and course drop policies.

**STUDENTS WITH DISABILITIES:** Required on all syllabi. Do not modify.

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.

**Pregnancy, Pregnancy-related, and Parenting Accommodations**

Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-related condition, or parenting (reasonably immediate postpartum period) are encouraged to contact Student Accessibility Services for additional information and to request accommodations.

**Student Accessibility Services:**

**Brownsville Campus**: Student Accessibility Services is located in 1.107 in the Music and Learning Center building (BMSLC) and can be contacted by phone at (956) 882-7374 or via email at [ability@utrgv.edu](mailto:ability@utrgv.edu).

**Edinburg Campus:** Student Accessibility Services is located in 108 University Center (EUCTR) and can be contacted by phone at (956) 665-7005 or via email at [ability@utrgv.edu](mailto:ability@utrgv.edu).

**ATTENDANCE:** Recommended on all syllabi; may be modified by the instructor as long as it is not inconsistent with UTRGV policy.

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

**SCHOLASTIC DISHONESTY:** Recommended on all syllabi.

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 (including self-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, STU 02-100, and UTRGV Academic Integrity Guidelines). **All scholastic dishonesty incidents will be reported to Student Rights and Responsibilities.**

**SEXUAL MISCONDUCT and MANDATORY REPORTING:**  Required on all syllabi. Do not modify.

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 ([oie@utrgv.edu](mailto:oie@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](https://nam01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.utrgv.edu%2Fequity&data=02%7C01%7Cmarissa.alaniz%40utrgv.edu%7Ccdba6e51db19402b2a0f08d7062784d4%7C990436a687df491c91249afa91f88827%7C0%7C0%7C636984639122459545&sdata=5hndVru5iLHMQARX2XhtCu41F8pbn0A6sKxkK1lXYss%3D&reserved=0), 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:** Recommended on all syllabi; may be modified by the instructor as long as it is not inconsistent with UTRGV policy.

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.

**STUDENT SERVICES:** Recommended on all syllabi.

Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Students Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email ([ucentral@utrgv.edu](mailto:ucentral@utrgv.edu)) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor’s office hours. University Resources include the Advising Center, Career Center, Counseling Center, Learning Center, and Writing Center. The centers provide services such as tutoring, writing help, counseling services, critical thinking, study skills, degree planning, and student employment. In addition, services such as the Food Pantry are also provided. Locations are listed below.

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| **Center Name** | **Brownsville Campus** | **Edinburg Campus** |
| **Advising Center**  [AcademicAdvising@utrgv.edu](mailto:AcademicAdvising@utrgv.edu) | BMAIN 1.400  (956) 665-7120 | ESWKH 101  (956) 665-7120 |
| **Career Center**  [CareerCenter@utrgv.edu](mailto:CareerCenter@utrgv.edu) | BCRTZ 129  (956) 882-5627 | ESSBL 2.101  (956) 665-2243 |
| **Counseling Center**  [Counseling@utrgv.edu](mailto:Counseling@utrgv.edu)  [Counseling and Related Services List](https://www.utrgv.edu/facultysuccess/_files/documents/syllabus-statement-for-counseling-12-16-19.pdf) | BSTUN 2.10  (956) 882-3897 | EUCTR 109  (956) 665-2574 |
| **Food Pantry**  [FoodPantry@utrgv.edu](mailto:FoodPantry@utrgv.edu) | BCAVL 101 & 102  (956) 882-7126 | EUCTR 114 (956) 665-3663 |
| **Learning Center**  [LearningCenter@utrgv.edu](mailto:LearningCenter@utrgv.edu) | BMSLC 2.118  (956) 882-8208 | ELCTR 100  (956) 665-2585 |
| **Writing Center**  [WC@utrgv.edu](mailto:WC@utrgv.edu) | BUBLB 3.206  (956) 882-7065 | ESTAC 3.119  (956) 665-2538 |