

CS 2101  
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**Syllabus**  
TR 8:00-8:50am

**Spring 2022**  
QUIN 206

**Instructor:** Julio César Urenda Castañeda

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### Course Access Points

Announcements and Online Discussions: [Piazza](#)

Homework and Quizzes: [Gradescope](#)

Online sessions, when needed: [Zoom](#)

**Prerequisites:** MATH 1508 with a grade of C or better.

### Course Objectives:

Upon successful completion of the course, you will use the basic algebra of sets and logic. You will categorize binary relations. Also, you will know the basic properties of arbitrary functions. You will be familiar with induction and recursion, and their relevance to computer program analysis.

You will relate to counting problems in computing. In particular, you will apply recurrence relations to model problems on algorithm complexity.

In this class, I expect that you become an active learner, and develop an understanding of the essential connections/relevance of the content of this course with their computer science education.

Finally, you will develop team-working skills, critical-thinking skills, and professionalism.

### Communication

This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email [team@piazza.com](mailto:team@piazza.com).

Find our class page at: [Piazza](#)

### Textbook

*Discrete Mathematics and its Applications* by K. Rosen, 7th Ed. This book is available in our UTEP library. Affordable copies may also be found on Amazon or among students that already took the course, for example.

*Required Reading:* Read each section that we cover in class, both before and after class. Skim the section before class, even if you do not understand it fully, to have some idea of what we will be doing in class. Read it more carefully after class to clarify and fill in details you missed in class.

Warning: Sometimes, we will not “cover” all the material from a section in class, but instead focus on a particular aspect of the section. In such cases, I will point out in class which other parts of the section I expect you to read on your own.

### Grading

Grades are communicated to students in a timely manner. It is the students' responsibility to keep track of their grades by compiling the grades they receive. Your semester grade will be based on a combination of homework assignments, quizzes, class participation, one partial exams, and a final exam.

- 30% Homework
- 20% Quizzes
- 45% Exams (3 partial exam and 1 final exam)
- 5% Class participation (includes on-time lecture attendance, active participation in class, completion of any quizzes for attendance and survey purposes)

The nominal percentage-score-to-letter-grade conversion for CS 2101 is as follows:

- 90% or higher is an A
- 80-89% is a B
- 70-79% is a C
- 60-69% is a D
- Below 60% is an F

*Note: Regardless of your standing in the class at that time, you need to earn a 65 or better at the final exam to pass the course*

### **Expectations**

*Class Participation:* Attendance at and participation in all lecture sessions are critical factors of your success in this course. Students should be on time for all scheduled sessions and attend the entire session. Attendance will be taken at every session (at first you will have to sign in but as time goes the instructor will know you and mark you present without your help) and will count towards your class participation grade. Students should notify the instructor prior to missing a session if at all possible, and certainly right after if earlier was not possible. The instructor will allow two unexcused absences per semester before having the option to deduct points from the final grade (5 points per subsequent unexcused absence). It is the student's responsibility to obtain the content covered during missed class(es). Participation points also include completing post-lecture and post-labs online quizzes (when requested) that are administered as surveys to monitor students' overall progress and potential struggles.

*Quizzes:* The purpose of each quiz is to ensure that students are staying current with the weekly reading and homework assignments, and to verify that they have acquired the skills developed in class. Quizzes will be administered approximately once a week. There will be no make-up on missed quizzes.

*Homework:* Reading and homework assignments will be announced in class and/or posted on piazza (under the Homework section of Resources). If you miss a lecture session, it is your responsibility to find out what you missed. You should expect to spend at least two hours per week outside of lecture on reading and homework assignments and reviews: completing the assigned activities on time will be crucial to your success in the class (since these activities prepare you for classwork) and to getting a good grade (since late completion will be penalized).

*Exams:* There will be one midterm exam and one final exam. These exams together will weigh 45% of your overall final grade for CS 2101. Because the exams contribute so heavily to your total grade, it is vital that you do well on them. If you have test-taking difficulties in general or if you have difficulties with our tests in particular, please come and let me know as soon as possible and/or request appropriate accommodation from UTEP's Center for Accommodation and Students' Services. The purpose of the midterm exam is to allow you to demonstrate mastery of course concepts covered thus far during the semester. The mid-term exam will take place during the regular lecture session and is tentatively scheduled around half of the term. Make-up exams will be given only in extremely unusual circumstances. If you must miss an exam, please meet with an instructor, BEFORE the exam. The final exam will be comprehensive. You must score 65% or better on the final exam to pass this course. If you have a scheduling conflict (e.g., if you are taking a final at EPCC) or if you are scheduled for three final exams in one day, see your instructor in advance for accommodation, before the end of the term. The final exam schedule is available online. It is the students' responsibility to keep informed.

**Technology Requirements** Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop, scanner, a webcam, and a microphone. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have a word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about Microsoft Office 365 and follow the instructions.

**IMPORTANT:** If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

## Policies

*Academic dishonesty:* It is UTEP's policy, and mine, for all suspected cases or acts of alleged scholastic dishonesty to be referred to the Office of Student Conduct and Conflict Resolution for investigation and appropriate disposition. See Section II.1.2.2 of the Handbook of Operating Procedures.

*Class Recordings:* The use of recordings will enable you to have access to class lectures, group discussions, and so on in the event you miss a synchronous or in-person class meeting due to illness or other extenuating circumstance. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. You may not share recordings outside of this course. Doing so may result in disciplinary action.

*COVID-19 Precautions:* Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org)

*ONLINE ETIQUETTE* As we know, sometimes communication online can be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.

- Always consider audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space.
- Be reminded that some materials are subject to copyright and violations are prosecuted, so be cautious on what you share!

*Courtesy:* We all have to show courtesy to each other, and the class as a whole, during class time. Please arrive to class on time (or let me know when you have to be late, and why); do not engage in side conversations when one person (me, or another student) is talking to the whole class; turn off your cell phone (or, for

emergencies, at least set it to not ring out loud), and **do not** engage in phone, email, or text conversations during class.

*Disabilities:* If you have, or suspect you have, a disability and need an accommodation, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148, [cass@utep.edu](mailto:cass@utep.edu), or Union East room 106. You are responsible for presenting to me any CASS accommodation letters and instructions.

*Exceptional circumstances:* If you anticipate the possibility of missing large portions of class time, due to exceptional circumstances such as military service and/or training, or childbirth, please let me know as soon as possible.

*Course Resources:* UTEP provides a variety of student services and support:

- Technology Resources
- Help Desk: Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.
- Academic Resources
  - UTEP Library: Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
  - University Writing Center (UWC): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
  - Math Tutoring Center (MaRCS): Ask a tutor for help and explore other available math resources.
  - History Tutoring Center (HTC): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
  - RefWorks: A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.
- Individual Resources
  - Military Student Success Center: Assists personnel in any branch of service to reach their educational goals.
  - Center for Accommodations and Support Services: Assists students with ADA-related accommodations for coursework, housing, and internships.
  - Counseling and Psychological Services: Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

## Detailed Learning Outcomes

*Level 1: Knowledge and Comprehension.* Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. On successful completion of this course, students will be able to describe, at a high level:

1. Counting and its relevance to computer science
2. Recurrence relations

*Level 2: Application and Analysis.* Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details. Upon successful completion of this course, students will be able:

1. Logical reasoning for propositional logic: truth tables.
2. Predicate logic, including writing predicate logic expressions and basic reasoning: translation and inference rules.
3. Sets and functions: union, intersection, complement and product; injective, surjective and bijective functions; and combinations and permutations.
4. Induction and recursion: construct recurrence relations and basic proofs by mathematical induction.

*Level 3 Outcomes: Synthesis and Evaluation.* Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. On successful completion of this course, students will be able to use the syntax and semantics of a higher-level language to express solutions to programming problems, including the correct use of:

1. Propositional logic: propositions and operators, evaluation of propositions, conditional statements, and logical equivalence
2. Induction and recursion: identify problems that can be modeled by recurrence relations hypothesize and prove new properties.

**Concept Map:**

