

**Course Title: Discrete Structures**

**Course Prefix: COMP**

**Course No.: 2103**

**Section No.: 01**

**Department of | Computer Science**

**College of | Engineering**

**Instructor Name:**

**Dr. Lei Huang**

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**Office Hours: | MWF: 11:00am-12:00pm, 1:00pm-3:00pm, and by appointment**

**Virtual Office Hours: |**

**Course Location: | S.R. Collins 225**

**Class Meeting Days & Times: | MWF: 10:00am- 10:50am**

**Catalog Description:** (3-0) Credit 3 semester hours. A bridge course between data structures/discrete mathematics and analysis of algorithms, to include reviews of functions and relations, basic combinatorics (set operations, counting, combinations, and permutations) and introductions to propositional and predicate logic, discrete probability theory, recursive definitions, computational complexity, and proof techniques including mathematical induction. The concepts are illustrated by applications involving graphs, trees, networks and related algorithms.

**Prerequisites:** COMP 1223, COMP 1211 or COMP 1224

**Co-requisites:** NONE

**Required Text:** *"Discrete Mathematical Structures"*, 6th edition, ISBN 978-0132297516. Author: Bernard Kolman, Robert C. Busby, Sharon Cutler Ross. Publisher: Pearson Prentice Hall.

**Recommended Text/Readings: |**

**Access to Learning Resources:**

PVAMU Library:

phone: (936) 261-1500;

web: <http://www.tamu.edu/pvamu/library/>

University Bookstore:

phone: (936) 261-1990;

web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

**Course Goals or Overview:**

The goal of this course is to teach students to acquire the basic notions of discrete mathematics and its applications in computer science. In contrast to the continuous mathematics you have learned so far (geometry, trigonometry, calculus), the basic objects of discrete mathematics are the set of integers and of logical values; there is no way to move continuously from 2 to 3, or from "true" to "false." Because the states of a computer are discrete, this is the part of mathematics most associated with computer science.

**Course Outcomes/Objectives**

**At the end of this course, the student will have**

- 1 | Ability to apply knowledge of computing and mathematics appropriate to discipline  
a1: Students demonstrate knowledge and application of mathematics  
a2: Students demonstrate knowledge and application of computing
- 2 | Ability to develop multiple models of computer based system by applying mathematics, algorithms, and computer science.

| Ability to demonstrate comprehension of the tradeoffs involved in design choices

## Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

**Exams** – written tests designed to measure knowledge of presented course material

**Assignments** – written assignments designed to supplement and reinforce course material

**Class Participation** – daily attendance and participation in class discussions

### Grading Matrix

Instrument	Value (points or percentages)	Total
Assignments	Four assignments at 25%	25%
Class participation	10%	10%
Exams	2 Exams at 65% (Midterm: 30%, Final exam: 35%)	65%
<b>Total:</b>		<b>100%</b>

#### Grade Determination:

Letter Grades		
<b>A</b>	$\geq 90$	
<b>B</b>	$\geq 80$	$< 90$
<b>C</b>	$\geq 70$	$< 80$
<b>D</b>	$\geq 60$	$< 70$
<b>F</b>	$< 60$	

## Course Procedures

### Submission of Assignments:

Homework assignments (if assigned) are posted on the course web site and/or given in class. Homework assignments are due **BEFORE** the class (i.e., lecture) on the due date. Homework assignments submitted after that time will be considered late, a penalty of 20% **per day** will be assessed.

### Formatting Documents:

Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the "save as" tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

### Exam Policy

Exams should be taken as scheduled. **Contact me in advance if you cannot take an exam.** A reasonable explanation is required, and corroboration may be required at my discretion. Your interpretation of reasonable may not coincide with mine. Only those **significant unforeseen circumstances** that cause you missing exam will be considered. If exam is missed and you have not contacted me and/or you do not have an approved reason for missing the exam, you will get a zero for the exam. **No make up final exam will be allowed except under documented emergencies (See Student Handbook).**

### College of Engineering Textbook Policy

Students **MUST** acquire the required textbook that is listed on the course syllabus for this course. The textbook must be acquired by the 10th class day. Students are not allowed to share textbooks with students who are currently registered in the same class. Failure to acquire (or show proof of purchase) the required textbook by the 10th class day will result in the student being administratively dropped from the course. The University will assess financial obligations for the course to the student as with any other dropped class according to the fee schedule as well as your financial aid may be affected.

If you are not financially able to purchase a required textbook for an engineering course prior to the 10th class day, you may apply to the College of Engineering Textbook Fund for a textbook voucher. The voucher can only be used at the Campus Bookstore. This voucher is a loan and must be paid back to the College of Engineering prior to the start of pre-registration for the coming semester. If the loan is not repaid, a hold will be placed on your account.

Additional information and application materials can be obtained from the Assistant Dean's Office (SR Collins Rm 349) and obtained online at the College of Engineering website under student resources.

### **16 WEEK CALENDAR (Tentative)**

**Week One:** Syllabus Discussion, introduction  
Chapter (s): Chapter 1

Assignment (s):

**Week Two:** Sets, Sequences, and Matrices  
Chapter (s): Chapter 1

Assignment (s):

**Week Three:** Logic  
Chapter (s): Chapter 2

Assignment (s):

**Week Four:** Logic  
Chapter (s): Chapter 2

Assignment (s): Homework #1

**Week Five:** Counting  
Chapter (s): Chapter 3

Assignment (s):

**Week Six:** Counting  
Chapter (s): Chapter 3

Assignment (s):

**Week Seven:** Relations and Digraphs  
Chapter (s): Chapter 4

Assignment (s): Homework #2

**Week Eight:** Relations and Digraphs  
Chapter (s): Chapter 4

Assignment (s):

**Mid-Term Exam**

**Week Nine:** Functions  
Chapter (s): Chapter 5

Assignment (s):

**Week Ten:** Functions  
Chapter (s): Chapter 5

Assignment (s):

**Week Eleven:** Order Relations and Structures  
Chapter (s): Chapter 6

Assignment (s): Homework #3

**Week Twelve:** Order Relations and Structures  
Chapter (s): Chapter 6

Assignment (s):

**Week Thirteen:** Trees  
Chapter (s): Chapter 7

Assignment (s):

**Week Fourteen:** Graph Theory  
Chapter (s): Chapter 8

Assignment (s): Homework #4

**Week Fifteen:** Graph Theory  
Chapter (s): Chapter 8

Assignment (s):

**Week Sixteen**  
**Final Exam**

# University Rules and Procedures

## **Disability statement (See Student Handbook):**

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

## **Academic misconduct (See Student Handbook):**

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

## **Forms of academic dishonesty:**

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

## **Nonacademic misconduct (See Student Handbook)**

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

## **Sexual misconduct (See Student Handbook):**

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

## **Attendance Policy:**

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

## **Student Academic Appeals Process**

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

# Technical Considerations for Online and Web-Assist Courses

## Minimum Hardware and Software Requirements:

- Pentium with Windows XP or PowerMac with OS 9
- 56K modem or network access
- Internet provider with SLIP or PPP
- 8X or greater CD-ROM
- 64MB RAM
- Hard drive with 40MB available space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 5.0 /plug-ins
- Participants should have a basic proficiency of the following computer skills:
  - Sending and receiving email
  - A working knowledge of the Internet
  - Proficiency in Microsoft Word
  - Proficiency in the Acrobat PDF Reader
  - Basic knowledge of Windows or Mac O.S.

**Netiquette (online etiquette):** students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

**Technical Support:** Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282

## Communication Expectations and Standards:

All emails or discussion postings will receive a response from the instructor within 48 hours.

You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following **my receipt** of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

## Submission of Assignments:

Assignments, Papers, Exercises, and Projects will distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the Office of Distance Learning.

## Discussion Requirement:

Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board.

Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.