

Instructor: Ari Mermelstein

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Course Web page: [www.sci.brooklyn.cuny.edu/~mermelstein](http://www.sci.brooklyn.cuny.edu/~mermelstein)

Class meeting hours: ET6: Tuesdays 6:30-9:10 PM in room 1127N.

Office hour and room: TBA

## Required Textbook

*Discrete Mathematics Fifth Edition* by Kenneth Ross and Charles Wright.

ISBN: 013065247-4.

## Prerequisite

CISC 1115 (Intro to Programming in Java)

Mathematics 1011 (Precalculus)

### **Information most needed from CISC 1115:**

#### Basic Programming Techniques

- Loops (while loops, for loops)
- Arrays
- Conditional statements (if-then-else)
- Strings

Note: It is not important to me (in this course) that you can program perfectly with your eyes closed (although, this should be your goal...) I may do a little bit of programming in class to connect ideas that we're going to study to programming. However, I'll probably write in a pseudocode so that everyone can understand, regardless of programming language.

It's imperative, therefore, that you understand the mechanics of basic programming. (No pun intended!)

### **Information most needed from Math 1011:**

1. Understanding basic properties of real numbers
2. Understanding basic properties of the natural numbers
3. Algebra (equations, adding/multiplying fractions, properties of logarithms and exponents)
4. Basic understanding of logic and sets (we'll go over this, don't worry!)

## Course Objectives

By course-end the student will be able to understand and use:

1. Simple proofs of mathematical statements (mathematical induction, indirect arguments) and logical propositions (including quantifiers).
2. Fundamental concepts of set theory and Boolean Algebra. Functional and relational properties (one-to-one, onto, reflexive, symmetric, transitive, equivalence, partial ordering), and operations (composition, transitive closure).
3. Basic matrix operations. Graph algorithms and their application to computer science. Tree traversal algorithms.
4. Counting principles, countable and uncountable sets. Basic probability theory and applications.
5. Big O Notation. Recursive definitions and solutions of simple of recurrence relations. (time permitting)

## Academic Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for policy implementation can be found at [www.brooklyn.cuny.edu/bc/policies](http://www.brooklyn.cuny.edu/bc/policies). If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member *must* report the violation. [L]  
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## Non-Attendance Because Of Religious Observance

The state law regarding non-attendance because of religious beliefs is on p. 53 in the Bulletin. Please let me know now if you have to miss an exam.

## **Center for Student Disability Services**

In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell at (718) 951-5538. If you have already registered with the Center for Student Disability Services, please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

## **Important Dates For the Fall 2021 Semester**

**Wednesday, August 25** - First day of weekday class

**Tuesday, August 31** - Last day to add a class.

**Friday-Wednesday September 3-8** – No classes.

**Wednesday-Thursday September 15-16** – No classes.

**Tuesday-Wednesday September 21-22**—I will not be here.

**Tuesday-Wednesday September 28-29** – I will not be here.

**Monday, October 11** – College closed.

**Thursday-Sunday November 25-28** – College closed.

**Monday, December 13** – Last day to drop with a W grade,

**Tuesday, December 14** – Reading day.

## **Grades**

First exam - 30%

Second exam- 30%

Final Exam- 30%

Homework - 5%

Participation- 5%

Every time we finish a section in the book, I will assign the homework for that section if there is any (page on my website). The homework is being assigned for your benefit; if you do not practice the topics as I cover them, you will get very lost very quickly and will do poorly on the exams.

Class participation must be earned (it will not be an automatic 5 points).

## **Final grade calculation**

Your letter grade will be determined as follows:

A+ : 98-100

A : 93-97

A- : 90-92

B+: 87-89

B: 83-86

B-: 80-82

C+: 77-79

C : 73-76

C- : 70 - 72

D+: 67-69

D: 63 - 66

D- : 60 - 62

F : < 60

## Exam Dates - Tentative

The first exam will be on Tuesday, October 19.

The second exam will be on Tuesday, November 23.

The final exam (not tentative) for ET6 will be on Tuesday, December 21 at **6:00 PM (NOT 6:30!) room TBA.**

**Note:** The final exam will be cumulative, and I am not allowed to give any more time than 2 hours.

## Topics List

Chapter 1      Sets, Sequences, and Functions (Sections 3-7)

Chapter 2      Elementary Logic (Sections 1, 2, some of 5)

Chapter 13     Quantifiers, Predicate Calculus, Infinite Sets, and Diagonalization.

Chapter 3      Relations (Sections 1-4)

Chapter 4, and Chapter 2 section 4      Induction, Recursion, and methods of proofs (sections 2-6)

Chapter 5      Counting and Basic Probability

Chapter 6      Introduction to graphs and trees (Maybe)