

# Quinsigamond Community College School of Math, Science, & Engineering

## Instructor's Information

Instructor: Professor XX (she/her/hers)  
Office: 200A  
Email: xxxxx@qcc.mass.edu  
Telephone: 508-854-xxxx

## Course Information

Course: MAT 121 Topics in Mathematics – Section XX  
Meets: Mondays and Wednesdays from 11:00am – 12:15pm  
Room: 177A  
Credits: 3 credits  
Semester: Fall 2024

## Course Description

This course explores a variety of topics in contemporary mathematics. These topics include problem solving and critical thinking, personal finance, numeration systems, set theory, counting principles and probability theory, and voting methods.

## Prerequisites or Corequisite

Prerequisites: College level mathematics course or QMAT placement score > 21 or appropriate multiple measures placement *or*

Corequisite: MAT 051 Topics in Mathematics Corequisite

## Required Textbook/Materials/Website

Textbook: *Thinking Mathematically*, by Blitzer, 8<sup>th</sup> edition, Pearson © 2023

Materials: Graphing calculator or scientific calculator

Required access to online resource: [www.mymathlab.com](http://www.mymathlab.com)

## Student Learning Outcomes

Upon completion of this course, students will be able to:

1. Use critical thinking to differentiate between inductive and deductive reasoning.
2. Correctly apply set theory to perform operations with sets and model them using Venn diagrams.
3. Change numbers from one base to another and perform operations with numbers in different bases.
4. Evaluate factorial expressions, permutations, combinations, and compute probabilities.
5. Determine present value, future value, value of an annuity and apply them to real-life situations.
6. Use different voting methods to determine an election's winner.

## Course Topics & Required Section Readings/Assignments

### Set Theory

- Basic Set Concepts
- Subsets
- Venn Diagrams and Set Operations
- Set Operations and Venn Diagrams with Three Sets
- Survey Problems

### Number Representation and Calculation

- Number Bases in Positional Systems
- Computation in Positional Systems

### Voting and Apportionment

- Voting Methods
- Apportionment Methods

### Personal Finance

- Simple Interest
- Compound Interest
- Annuities
- Cars
- The Cost of Home Ownership

### Counting Methods and Probability Theory

- The Fundamental Counting Principle
- Permutations
- Combinations
- Fundamentals of Probability
- Probability with the Fundamental Counting Principle, Permutations, and Combinations

## Grading Breakdown

20%	Homework
10%	Quizzes
10%	<Attendance or Project & Presentation>
35%	Exams
25%	Comprehensive Final Exam

Grade	Range	Grade	Range	Grade	Range
A	95 – 100	B –	80 – 82	D +	67 – 69
A –	90 – 94	C +	77 – 79	D	63 – 66
B +	87 – 89	C	73 – 76	D –	60 – 62
B	83 – 86	C –	70 – 72	F	0 – 59

## Teaching Procedures

Most classes will be a combination of lectures, group activities, and in-class assignments. You will be given homework assignments to be completed outside of class. Occasionally, a quiz or exam will be given in class.

## Attendance Policy

Students are expected to attend all classes for the entire period. Attendance will be taken in every class. If you are absent from class, proper documentation will excuse your absence.

## Diversity, Equity, and Inclusion Statement for the School of Math & Science

The School of Math and Science is motivated to teach and learn from the diverse community we have at QCC. In Science, Technology, Engineering, and Mathematics (STEM), it is advantageous to approach problems from multiple perspectives. The power of diversity, equity and inclusion allows us to persevere and overcome challenges.

The faculty of the School of Math and Science pledge to help students meet the demands of STEM regardless of race/ethnicity, gender identity and expression, sexual orientation, faith, abilities/disabilities, age, socioeconomic background, political leaning, ancestry, national origin, home language and all other identities. We are dedicated to nurturing a culture of collaboration, mutual respect and understanding; and to empowering members of our community to embrace their full potential.

## Accessibility Statement

Quinsigamond Community College is committed to providing access and inclusion for all persons with disabilities. Students who require an accommodation in this course should notify the professor as soon as possible. Students are responsible for forwarding the Accommodation Letter to the professor (via email or hard copy). Students may request accommodations at any time during the semester, which begin upon receipt (accommodations are not retroactive). Please discuss any barriers which may arise during the semester with your professor or coordinator in the Student Accessibility Services office.

### **Contact Information for Student Accessibility Services (SAS):**

Call: 508-854-4471

Sorenson Video Phone: 508-502-7647

Email: [disabilityservices@qcc.mass.edu](mailto:disabilityservices@qcc.mass.edu)

## Services for Veterans

If you are a veteran of the US Armed Forces, please visit the Veteran Affairs Office located in 258A (Administration Building) or contact them at [veteranaffairs@qcc.mass.edu](mailto:veteranaffairs@qcc.mass.edu).

## Academic Honesty and Plagiarism

Our purpose of education is to seek the truth; this work requires trust and honesty between teacher and student. If we are not honest about what we know and don't know, our learning will always be impaired. Because our teaching and learning depends on this honest communication, we expect all students to understand what plagiarism is and why it is unacceptable.

Plagiarism means taking someone else's ideas or words and presenting them as one's own. The offense can take many forms including cheating on a test, passing in a paper taken from the Internet or from another student, or failing to properly use and credit sources in an essay. Sometimes the issue is subtle, involving getting too much help on an assignment from someone else. In every instance,

plagiarism means cheating both oneself and the owner of the source. Since cheating sabotages a student's learning experience, consequences range from no credit for the assignment to failure for the course and possible expulsion from the college.

The penalty for getting caught cheating in this course is a failure of the quiz or test, or failure of the entire course. This is solely at the discretion of the instructor.

For further information concerning plagiarism, refer to the QCC Student Handbook.

## **Math Center & QCC Math YouTube Channel**

The Math Center provides free, drop-in tutoring assistance for students in any QCC mathematics course. Located on the second floor of the Harrington Learning Center (HLC), the Math Center is a welcoming place where students have the opportunity to work collaboratively with tutors and classmates. Students can work intensively to improve their mathematical skills or simply drop by to ask a few questions. In addition to tutoring, the Math Center houses various math-related resources, and computers and software for math coursework. Visit their website for details and the semester schedule: <https://www.qcc.edu/services/tutoring/math-center>