Quinsigamond Community College  
School of Math and Science  

Instructor's Information:  
Instructor: <Professor John Smith>  
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Course Information:  
Course: MAT 121 Topics in Mathematics – Section ##  
Meets on: <Mondays, Wednesdays, Fridays from 8:00am – 8:50am>  
Credits: 3 credit hours  

Course Description:  
This course explores various areas in contemporary mathematics and consists of two components: required topics and optional topics. Required topics include mathematical patterns and problem solving, consumer finance, probability, statistics and Euclidean and transformational geometry. Optional topics may be chosen from the following: linear functions and applications; numeration systems; sets; logic; graph theory; election theory; apportionment; tessellations and fractals; and cryptography; in addition, instructors may also choose to expand upon the required topics.  

Pre-requisite:  
MAT 095 with a grade of “C” or higher; or appropriate placement score  

Required Textbook/Materials/Website:  
Materials: Graphing calculator  
Website: Access to www.mymathlab.com  

Student Learning Outcomes & Instructional Objectives:  
This course is designed to achieve the following student outcomes and objectives:  
• Use inductive and deductive reasoning.  
• Solve problems with patterns.  
• Use problem solving strategies to solve a variety of problems.  
• Solve applications using linear equations.  
• Compute simple interest.  
• Compute compound interest.  
• Compute annuities, stocks and bonds.  
• Compute and analyze installment buying.  
• Compute and analyze amortization and the cost of home ownership.  
• Compute different types of measurement.  
• Study and apply basic concepts of Euclidean Geometry.
• Compute perimeter, area, and volume in the context of real world problems.
• Use right triangle trigonometry to solve real world problems.
• Use basic statistics to analyze and solve real world problems.

**Teaching Procedures:**
Most classes will be a combination of lecture, group activities, and in-class assignments. You will be given homework assignments to be completed outside of class, with due dates/times. There will occasionally be a quiz or exam given in class.

**Course Topics & Required Assignments/Readings:**

**Problem Solving and Critical Thinking**
- Inductive and Deductive Reasoning
- Estimation, Graphs, and Mathematical Models
- Problem Solving

**Number Theory and the Real Number System**
- Number Theory: Prime and Composite Numbers
- The Integers; Order of Operations
- The Rational Numbers
- The Irrational Numbers
- Real Numbers and Their Properties; Clock Addition
- Exponents and Scientific Notation
- Arithmetic and Geometric Sequences

**Algebra: Equations and Inequalities**
- Algebraic Expressions and Formulas
- Linear Equations in One Variable and Proportions
- Applications of Linear Equations

**Personal Finance**
- Percent, Sales Tax, and Discounts
- Income Tax
- Simple Interest
- Compound Interest
- Annuities, Methods of Saving, and Investments
- Cars
- The Cost of Home Ownership
- Credit cards

**Geometry**
- Points, Lines, Planes, and Angles
- Polygons, Perimeter, and Tessellations
- Area and Circumference
- Volume and Surface Area
- Right Triangle Trigonometry

**Counting methods and Probability Theory**
- The Fundamental Counting Principle
- Permutations
• Combinations
• Fundamentals of Probability
• Probability with the Fundamental Counting Principle, Permutations, and Combinations

Statistics
• Sampling, Frequency Distributions, and Graphs
• Measures of Central Tendency
• Measures of Dispersion
• The Normal Distribution

Assignment & Test Schedule:
<list all assignments, quizzes, & exam dates>

Grading Breakdown:
25% Homework
15% Quizzes
10% Attendance
20% Exams
30% Final Exam/ Final Project

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

Attendance Policy:
Students are expected to attend all classes, for the entire period. Attendance will be taken during every class, and counts towards your final course grade. If you are absent from class, a doctor's note will excuse your absence.

Disability Statement:
If you have a disability which may require an accommodation, please notify me as soon as possible. You are responsible for forwarding your Accommodation Letter to me and discussing arrangements for this course. Your accommodations for this course begin upon my receipt of your Accommodation Letter; accommodations are not retroactive. You may request accommodations at any time during the semester, but instructors must be provided with reasonable notice prior to exams or deadlines. Disability Services works to promote access to ensure an accessible college experience for students. If you have further questions, contact Disability Services. All discussions are confidential.

Contact Information for Disability Services & Assistive Technology:
Call:  508-854-4471
Sorenson Video Phone: 508-502-7647
Email: disabilityservices@qcc.mass.edu

Services for Veterans:
If you are a veteran of the armed forces, please visit the Veteran Affairs Office located in 258A (Administration Building) or contact them at veteranaffairs@qcc.mass.edu

**Academic Honesty and Plagiarism:**
Our purpose in the classroom 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 the 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.

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