New York City College of Technology

Mathematics Department

COURSE CODE: MAT 1190

TITLE: Quantitative Reasoning

PREPARED BY**:** *Professors Nadia Benakli, Holly Carley, Ezra Halleck, Grazyna Niezgoda, Katherine Poirier, Jonas Reitz and Lin Zhou*

REVISED BY: Prof. Nadia Benakli, Spring 2020

Number of class hours, lab hours if applicable, credits 3 class hours, 3 credits

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COURSE DESCRIPTION:
Students develop and apply mathematical, logical, critical thinking, and statistical skills to solve problems in real-world contexts. They acquire skills in the fields of algebra, geometry, probability, statistics, and mathematical modeling. The course incorporates opportunities within the classroom to develop students' reading, writing, oral, and listening skills in a mathematical context.

COURSE CO/PREREQUISITE (S):

CUNY Proficiency in reading and mathematics.

REQUIRED HOMEWORK SYSTEM and TEXTBOOK: ALEKS with fully-integrated eBooK

ALEKS Class Code: Will be provided by your instructor

<u>eBook</u>

Title: Math in Our World

Edition: 4th Edition

Author: Dave Sobecki

Publisher: McGraw Hill Education

A scientific calculator is required.

COURSE INTENDED LEARNING OUTCOMES/ASSESSMENT METHODS

LEARNING OUTCOMES	ASSESSMENT METHODS
1. Apply mathematical, logical, critical thinking, and statistical skills to solve problems in real-world contexts.	**1.** Group activities, written report.
2. Represent mathematical information symbolically, visually, numerically, and verbally.	**2.** Individual oral presentations, in-class group activities.
3. Estimate mathematical quantities as well as evaluate the accuracy of estimates, and adjust estimates when necessary.	**3.** Classroom discussion, in-class estimation group assignments.
4. Represent and know how to read, collect and organize data in an assortment of appropriate written and graphical forms.	**4.** Classroom discussion, in-class group assignments (e.g., students read a newspaper article on a current issue, collect and analyze data related to the issue in the article, and write a report.), learning logs.
5. Recognize and understand functions as a way of modeling correspondence between two variables (linear and exponential).	**5.** Individual short essay related to functions (e.g., population growth, economics, climate change).
6 Describe the behavior of common functions in words, graphically, algebraically and in tables.	**6.** Written report and group presentation (e.g., an analysis of the garbage patch in the Pacific Ocean), learning logs.

GENERAL EDUCATION LEARNING OUTCOMES/ASSESSMENT METHODS

LEARNING OUTCOMES	ASSESSMENT METHODS
1. Demonstrate the ability to work collaboratively and independently on assignments in and outside a classroom setting.	**1.** Classroom discussions, group assignments and individual oral presentations.
2. Understand and employ both quantitative and qualitative analysis to solve problems**.**	**2.** Classroom Discussion, Group Activities, Group Presentations, Quizzes, Tests, Final Exam.
3. Develop reading, writing competencies, and listening skills.	**3.** Biweekly reading and writing assignments, individual and group presentation, classroom discussion. Each homework assignment requires written responses.
4. Work with teams. Build consensus. Use creativity.	**4.** Group Projects and Presentations.

SCOPE OF ASSIGNMENTS and other course requirements*

- **Learning log**
- **Participation in group work and discussion**
- **Homework reading assignments**
- **Group projects and presentation**
- **Tests**
- **Attendance**

ACADEMIC INTEGRITY POLICY STATEMENT

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

COLLEGE POLICY ON ABSENCE/LATENESS

A student may be absent without penalty for 10% of the number of scheduled class meetings during the semester as follows:

Class Meets	Allowable Absence
1 time/week	2 classes
2 times/week	3 classes

The official Mathematics Department policy is that two latenesses (this includes arriving late or leaving early) is equivalent to one absence.

***depending on department policy these may be uniform and required of all instructors of the course or there may be guidelines or samples from which instructors may select or adapt**

Session	Section	Topics	Pages	Homework
1	6.1	Applications of Linear Equations	p.299-303: ex.1-5	Practice Homework p.304: 37-61 odd ALEKS: Prerequisite Review ALEKS Assignment
2	6.2	Ratio, Proportion, and Variation	p.306-311: ex.1-7	Practice Homework p.315: 29-43 odd ALEKS Assignment
3	6.2	Ratio, Proportion, and Variation	p.311-314: ex.8-11	Practice Homework p.315: 47, 48, 53-57 odd ALEKS Assignment
4	1.1	The Nature of Mathematical Reasoning	p.5-9: ex.1-6	Practice Homework p.13: 1, 4, 5, 9, 15, 19, 23, 25, 33, 39, 41 ALEKS Assignment
5	1.1	The Nature of Mathematical Reasoning	p.10-12: ex.7-10	Practice Homework p.15: 43-55 odd ALEKS Assignment
6	1.2	Estimation and Interpreting Graphs	p.17-24: ex.1-7	Practice Homework p.25: 35, 37, 41, 43, 47, 51-58, 63-68 ALEKS Assignment
7		Exam I		
8	1.3	Problem-Solving Strategies	p.29-35: ex.1-6	Practice Homework p.36: 19, 21, 25, 35, 38, 41, 43 ALEKS Assignment
9	3.1	Statements and Quantifiers	p.103-109: ex.1-6	Practice Homework p.110: 1-4, 9, 11, 19, 21, 25, 27, 29, 31, 37, 39, 43, 45, 67, 69, 73, 75, 77, 79, 85, 87, 89, 91, 93 ALEKS Assignment
10	8.1	Measures of Length: Converting Units and the Metric System	p.451-458: ex.1-8	Practice Homework p.458: 9, 10, 12, 7-17 odd, 21, 33, 41, 49, 55, 61, 65, 70, 78, 81, 87, 89 ALEKS Assignment
11	8.2	Measures of Area, Volume, and Capacity	p.461-467: ex.1-11	Practice Homework p.467: 1, 2, 7, 11, 15, 21, 25, 29, 33, 37, 41, 45, 49, 53, 55, 59, 65, 69, 71, 73 ALEKS Assignment
12	8.3	Measures of Weight & Temperature	p.470-475: ex.1, 3-4, 6-7	Practice Homework p.475: 7, 9, 28, 29, 31, 32, 47, 49, 53, 33, 65, 70, 78, 79, 81, 82 ALEKS Assignment
13	7.1	Percents	p.365-370: ex.1-8	Practice Homework p.371: 1-3, 7-13 odd, 19-35 odd, 37, 41-47 odd, 50, 51, 53, 59, 63-66 ALEKS Assignment
14		exam II		

15	7.3	Simple interest	p.378-382: ex.1-6	Practice Homework p.386: 1-2, 9, 10, 13, 17, 37, 39, 45, 49 ALEKS Assignment
16	7.4	Compound Interest	p.388-394: ex.1-4 & 6-7	Practice Homework p.398: 1-3, 7, 9, 11, 12, 21, 22, 25-27, 29-35 odd ALEKS Assignment
17	10.1	Basic Concepts of Probability	p.557-564: ex.1-5	Practice Homework p.565: 1-7, 11-29 odd, 143-47 ALEKS Assignment
18	10.4	Tree Diagrams, Tables and Sample Spaces	p.584-589: ex.1-6	Practice Homework p.589: 5-15 odd, 19 ALEKS Assignment
19	11.1	Gathering and Organizing Data	p.643-648: ex.1-3	Practice Homework p.652: 1-4, 11, 13, 17-21, 25, 27, 29 ALEKS Assignment
	11.2	Picturing Data	p.655-660: ex.1-4	Practice Homework p.664: 1-7, 9-17 odd ALEKS Assignment
20	11.3	Measures of Average	p.667-676: ex.1-8	Practice Homework p.677: 1-11, 15, 17, 23, 27 ALEKS Assignment
21		exam III		
22	11.4	Measures of Variation	p.680-685: ex.1-4	Practice Homework p.685: 1-4, 11, 15, 17 ALEKS Assignment
23	11.5	Measures of Position	p.688-693: ex.1-5	Practice Homework p.694: 1-6, 7-15 odd, 21, 23, 29 ALEKS Assignment
24	11.6	The Normal Distribution	p.696-705: ex.1-7	Practice Homework p.707: 1-3, 5, 9, 19-33 odd ALEKS Assignment
	11.7	Applications of the Normal Distribution	p.709-711 ex.1-2	Practice Homework p.714: 5-9 ALEKS Assignment
25	11.8	Correlation and Regression Analysis	p.717-725: ex.1-6	Practice Homework p.727: 1-4, 13, 15, 19, 21 ALEKS Assignment
26	9.1	Points, Lines, Planes & Angles	p.483-490: ex.1-6	Practice Homework p.490: 9-30 all, 33, 41, 55, 65, 73-79 odd ALEKS Assignment
27	9.2	Triangles	p.492-499 ex.1-6	Practice Homework p.500: 11-15 all, 23-39 odd, 41, 44, 49, 51, 53 ALEKS Assignment
28	9.3	Polygons and Perimeter	p.503-507: ex.3, 4	Practice Homework p.507: 1, 5, 13-20 all, 22, 25, 26, 35, 37, 40, 44 ALEKS Assignment
	9.4	Areas of Polygons and	p.510-516:	Practice Homework

		Circles	ex.1-2, 4-8	p.516: 43, 44, 46, 49, 51 ALEKS Assignment
29		Review		
30		Final exam		