New York City College of Technology

Mathematics Department

COURSE CODE: MAT 1190

TITLE: Quantitative Reasoning

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

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

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.

Credit will not be given for both MAT 1190 and any one of the following courses: MAT 1175, MAT 1180.

REQUIRED TEXTBOOK and/or MATERIALS

Title: Math in Our World

Edition: 3rd Edition

Author: Dave Sobecki and Allan G. Bluman

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.

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*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	6.2	linear equations	p.304-312: ex.1-10	p.315: 37-61 odd, 85-91 odd
	6.3	applications of linear equations	p.317-320: ex.1-3	p.323: 35, 39, 41, 45, 47
2	6.4	ratio, proportion & direct var.	p.325-332: ex.1-9	p.334: 21-25 odd, 29-39 odd, 53, 55
3	6.5	linear inequalities	p.337-344: ex.1-7	p.344: 25-35 odd, 47-53 odd, 73, 77, 85
4	7.2	systems of linear equations	p.382-392: ex.1-11	p.393: 21-25 odd, 33-41 odd, 59, 63, 71
5	1.1	mathematical reasoning	p.4-12: ex.1-10	P. 12: 1, 5, 7, 9, 13, 15, 17, 21, 27, 43-49 odd
6	1.2	estimation & graphs	p.16-23: ex.1-7	P. 23: 5, 9, 13, 17, 21, 33-41 odd, 49, 51, 53, 55, 61, 63, 65
7		exam I		
8	3.1	statements/quantifiers	p.98-105: ex.1-5	P. 105: 5-11 odd, 17, 21, 27, 29, 41, 43, 53, 55, 65, 67, 69, 85, 87, 91
9	3.2	truth tables	p.107-117: ex.1-5	P. 118: 1, 5, 9, 13, 17, 21, 25, 29, 33, 35, 37, 41-51 odd
10	8.1	percents	p.442-449: ex.1-11	p.449: 3, 7-35 odd, 37, 41-47 odd, 53, 59, 63, 65, 67, 73
11	8.2	simple interest	p.454-457: ex.1-7	p.459: 1-25 odd, 35, 37, 39, 43, 47, 49, 51, 69
12	8.3	compound interest	p.462-466: ex.1-6	p.471: 1-11 odd, 21-39 odd, 65, 69
13	11.3	basic probability	p.636-643: ex.1-4	p.643: 2-6, 11-45 odd
14		exam II		
15	11.4	tree diagrams, tables	p.647-652: ex.1-5	p.652: 3-17 odd, 21, 23
16	12.1	gather/organize data	p.700-705: ex.1-3	p.707: 1-3, 9, 11-12, 15-16, 18-23, 28, 39-41
	12.2	picture data	p.710-715: ex.1-5	p.715: 5, 11, 17, 21, 27, 29
17	12.3	measures of average	p.718-726: ex.1-9	p.726: 6-10, 14, 22, 23, 25, 29, 31-34
18	12.4	measures of variation	p.729-733: ex.1-4	p.734: 1-3, 8, 14, 15, 21, 27, 30
19	12.5	measures of position	p.736-740: ex.1-5	p.740: 1, 2, 5, 7, 16, 21, 22, 27, 28, 31-33
20	12.6	normal distribution	p.742-749: ex.1-5	p.749: 1, 3, 4, 5, 11-41 odd
21		exam III		
22	12.8	correlation and regression	p.759-768: ex.1-5	p.769: 1, 2, 3, 7, 11, 13, 15, 19, 21, 23

23	9.1	length & unit conversions	p.520-527: ex.1-8	p.527: 7-17 odd, 19-55 every 4th, 59-65 odd
24	9.2	area, volume & capacity	p.529-536: ex.1-11	p.536: 7, 11, 15, 21, 25, 29, 33, 37, 41, 45, 49, 53, 55, 59, 65, 69, 71, 73
25	9.3	weight & temperature	p.539-543: ex.1, 3-4, 6-7	p.544: 7, 9, 28, 29, 31, 32, 47, 49, 53, 33, 65, 70, 78, 79, 81, 82, 84
26	10.1	points, lines, planes & angles	p.552-559: ex.1-6	p.559: 1-18 all, 19-25 odd, 27-31 odd, 35-40 odd, 51, 53, 55
27	10.2	triangles	p.561-568 ex.1-6	p.568: 1, 2, 3, 6, 11-16 all, 17-21 odd, 31, 32, 23, 25, 27, 41, 42, 46, 49, 52, 54
28	10.3	polygons and perimeter	p.572-575: ex.3, 4	p.575: 1, 2, 5, 13-20 all, 22, 25, 26, 35, 37, 40, 44
	10.4	areas of polygons and circles	p.578-584: ex.1-3, 5, 6	p.584: 1-3 all, 7-14 all, 17, 18, 27-33 odd, 39, 41, 43, 44, 52, 54
29		review		
30		final exam		