

NEW YORK CITY COLLEGE OF TECHNOLOGY
The City University of New York

DEPARTMENT:	Mathematics
COURSE:	MAT 1280
TITLE:	Quantitative Mathematics
DESCRIPTION:	Topics include probability, statistics, mathematics of finance, matrices, linear programming and optimization.
TEXT:	<u>Mathematics with Applications</u> Margaret L. Lial, Thomas W. Hungerford, John Holcomb 10 th edition, Addison-Wesley
CREDITS:	4
PREREQUISITES:	MAT 1180 Revised by Professor Johanna Ellner (Fall 2010)

A. Testing Guidelines:

A minimum of the following exams should be scheduled:

1. A one-hour exam at the end of the First Quarter.
2. A one session exam at the end of the Second Quarter.
3. A one-hour exam at the end of the Third Quarter.
4. A one session Final Examination.

B. Scientific Calculators with Logarithms and Exponential Functions are required.

Course Intended Learning Outcomes/Assessment Methods

Learning Outcomes	Assessment Methods
1. Solve systems of equations by performing basic matrix operations.	Classroom activities and discussion, homework, exams.
2. Determine extrema on a given domain using graphical methods.	Classroom activities and discussion, homework, exams.
3. Apply different interest models to verbal problems and gain a basic understanding for growth of money in finance theories.	Classroom activities and discussion, homework, exams.
4. <ul style="list-style-type: none"> • Perform basic set theoretic operations. • Calculate combinatorial probabilities. • Calculate probabilities using probability distributions. • Calculate measures of central tendencies and variation. 	Classroom activities and discussion, homework, exams.

General Education Learning Outcomes/Assessment Methods

Learning Outcomes	Assessment Methods
1. Gather, interpret, evaluate, and apply information discerningly from a variety of sources.	Classroom activities and discussion, homework, exams.
2. Understand and employ both quantitative and qualitative analysis to solve problems.	Classroom activities and discussion, homework, exams.
3. Employ scientific reasoning and logical thinking.	Classroom activities and discussion, homework, exams.
4. Communicate effectively using written and oral means.	Classroom activities and discussion, homework, exams.

New York City College of Technology Policy on Academic Integrity

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.

Session	Quantitative Mathematics	Homework
1	8.1 Sets pages 465 - 473	P. 473: 1 - 19 odd, 29 - 47 odd, 61 - 66 all
2	8.2 Applications of Venn Diagrams pages 475 - 482	P. 482: 1 - 15 odd, 31 - 39 odd, 17, 19
3	8.3 Introduction to Probability pages 485 - 492	P. 492: 3, 7, 11 - 19 odd, 23 - 35 odd, 39
4	8.4 Basic Concepts of Probability pages 495 - 502	P. 502: 1 - 11 odd, 15, 23 - 27 odd, 31 - 37 odd, 45 - 50 all
5	9.1 Probability Distributions and Expected Value pages 536 - 542	P. 542: 1 - 21, 25 - 37 odd
6	9.2 The Multiplication Principle, Permutations, Combinations pages 546 - 556	P. 557: 25 - 31 odd, 33 (a), 37 - 43 odd, 47 - 55 odd, 59, 63, 65, parts a, d, g, 67
7	Examination	
8	9.3 Applications of Counting pages 560 - 565	P. 565: 1, 5 - 19 odd, 21, 25, 29, 35, 37
9	9.4 Binomial Probability pages 567 - 572	P. 572: 1 - 5 odd, 13 - 23 odd, 31 - 35 odd, 37
10	10.1 Frequency Distributions and Measures of Central Tendency pages 598 - 603	P. 604: 1, 3, 9, 11, 15, 21, 22
11	10.2 Measures of Central Tendency pages 607 - 614	P. 614: 3, 7 - 17 odd, 25, 29, 32 - 33
12	10.3 Measures of Variation pages 618 - 624	P. 624: 1- 11 odd, 27, 29
13	10.4 Normal Distributions (and Box Plots – omit) pages 627 - 628	P. 638: 1, 5 - 13 odd, 23 - 29 odd, 31 - 47 odd, 51 - 53 all
14	10.5 Normal Approximation to the Binomial Distribution pages 641 - 645	P. 645: 1 - 13 odd, 19 - 25 odd

MAT 1280 Quantitative Mathematics

Text: Mathematics with Applications by Lial, Hungerford, Holcomb, 10th edition

15	Midterm Examination	
16	5.1 Simple Interest and Discount pages 260 - 265	P. 265: 1, 7, 9 - 11 odd, 17 - 29 odd, 37, 39, 45
17	5.2 Compound Interest pages 267 - 276	P. 276: 2 - 6 all, 7 - 15 odd, 23, 25, 29 - 37 odd, 45, 47, 51, 59
18	Continuous Compounding pages 307 - 309 5.3 Annuities, Future Value and Sinking Funds pages 279 - 287	P. 309: 1 - 4 all P. 287: 3 - 11 odd
19	5.3 Annuities, Future Value and Sinking Funds pages 279 - 287 (cont.)	P. 287: 13 - 17 odd, 37 - 41 odd, 47, 49
20	5.4 Annuities, Present Value, and Amortization pages 290 - 299	P. 300: 1 - 17 odd, 25 - 33 odd, 39 - 42 all, 47, 50, 51
21	6.1 Systems of Linear Equations in Two Variables pages 311 - 317 6.2 Larger Systems of Linear Equations pages 319 - 329	P. 317: 1 - 13 odd P. 329: 9, 13, 15, 19, 21, 47, 53, 61
22	6.3 Applications of Systems of Linear Equations pages 332 -338	P. 338: 1 - 7, 11, 21, 23 part a
23	6.4 Basic Matrix Operations pages 343 - 348	P. 349: 1 - 19 odd
24	6.5 Matrix Products and Inverses pages 351 - 361	P. 361: 1 - 5 odd, 9 - 15 odd, 27, 31, 33, 41
25	Examination 3	
26	7.1 Graphing Linear Inequalities in Two Variables pages 388 - 394	P. 395: 1, 5, 7 - 13 odd, 21, 25, 29, 35, 39, 51
27	7.2 Linear Programming: The Graphical Method pages 397 - 403	P. 403: 1 - 5 odd, 7 - 13 odd, 19
28	7.3 Applications of Linear Programming pages 405 - 409	P. 409: 1 - 5 odd, 9 part a, 11
29	Review Class	
30	Final Examination	

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6.1 Systems of Linear Equations in Two Variables pages 311 - 317	P. 317: 1 - 13 odd
6.2 Larger Systems of Linear Equations pages 319 - 329	P. 329: 9, 13, 15, 19, 21, 47, 53, 61
6.3 Applications of Systems of Linear Equations pages 332 - 338	P. 338: 1 - 7, 11, 21, 23 part a
6.4 Basic matrix Operations pages 343 - 348	P. 349: 1 - 19 odd
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7.3 Applications of Linear Programming pages 405 - 409	P. 409: 1 - 5 odd, 9 part a, 11