Outline of Objectives and Outcomes
with Recommend Practice Problems and Examples for FDMAT 108 Exams

Financial Mathematics Exam

(encompassing Section 3-A and Chapter 4, please note that 4-F will not be tested.)

• *Develop the necessary arithmetic and basic algebraic skills to succeed in daily life.*

Outcomes *Students will be able to:*	Book Section	Reading Examples	Homework Problems	Quick Quiz
Find appropriate absolute and relative changes in order to calculate percentages.	3-A	2, 3, 4	61, 63, 88, 90, 91	2, 3
View percentages in terms of fractions, changes, and comparisons.	3-A	1	55-60, 93	6, 8
Apply the *of versus more than* rule with percentages.	3-A	6, 7	73,	4, 5
Demonstrate the difference between percentage and percentage point.	3-A	8, 9	81, 83, 85, 111, 115	7

• *Understand the dangers of debt, the power of compound interest, and the advantages and disadvantages of various financial choices.*

Outcomes *Students will be able to:*	Book Section	Reading Examples	Homework Problems	Quick Quiz
Construct a reasonable budget based on income, savings, and expenses and demonstrate the importance of taking control of one's personal finances.	4-A	1, 4, 5	41-50	1, 2, 4
Demonstrate the astonishing power of compound interest and the role it plays in investments.	4-B	1, 2	41-52, 54, 55	1, 2,5
Describe the difference between annual percentage rate and annual percentage yield.	4-B	6	61-64, 84	6
Calculate both the annual return and total return to describe the percentage or return on an investment.	4-B	4-B: 7, 8, 9 4-C: 1, 2, 3	4-B: 53-60, 71-78 4-C: 45-52	4-B: 7, 8, 9 4-C: 1, 2, 5
Calculate the future value of both lump sum and annuity investments as well as solving for present value and time.	4-C	5, 6	59, 61, 62	3, 4
Demonstrate competence with the mathematics of loans by constructing amortization schedules using a spreadsheet.	4-D	-	-	6
Discuss the pros and cons of paying extra principal on a long-term loan.	4-D	1, 3, 4, 5	23-34, 47-50	9
Gain facility in describing the relationship between principal and interest in the context of both debt and investment.	4-D	9	55, 56	-
Discuss the key elements of liquidity, risk, and return and their relationship to investing.	4-C	1, 2	35, 36	4, 5
Carefully explain the mathematics and dangers of consumer credit and how to plan properly for living within one's means.	4-D	2, 5	43, 44, 45	6
Describe the marginal income tax brackets of our nation's tax code and how calculations are made based upon deductions and exemptions.	4-E	1, 2, 3, 4, 6	29-32; 35-46	2, 5, 6
Describe the difference between a tax credit and a tax deduction using specific examples.	4-E	4	47-52	3,4
Demonstrate an understanding of the difference between our national debt and deficit and the ramifications for the future.	4-F	1, 2, 6	-	1, 3, 4, 5

Outline of Objectives and Outcomes
with Recommend Practice Problems and Examples for FDMAT 108 Exams

Statistical LIteracy Exam (encompassing Chapters 5 and 6)

- *Analyze and critique real-world issues and arguments involving probability and statistics.*

Outcomes *Students will be able to:*	Book Section	Reading Examples	Homework Problems	Quick Quiz
Discuss coherently the potential for abuse and misuse of statistics and be able to critique, at their level of ability, the validity of statistical studies found in professional journals.	5-B	2, 3, 8	42-45	2, 3, 6, 9
Describe the abuse of statistical graphs often found in the media.	5-D	-	42-45	8
Describe the role of randomness, placebos, single and double-blinded studies, control vs. experimental groups and other key concepts found in inferential statistics.	5-A	4, 5, 6	25, 37, 45, 47, 59	5, 6, 10
Describe the difference between weak and strong correlation and between positive and negative correlation.	5-E	1, 2	23, 27, 29, 39	3, 4, 6
Point out the difference between correlation and causation.	5-E	3, 4	41, 45, 47	7, 10
Calculate and interpret the mean, median, mode, range, and standard deviation of a data set.	6-A	1, 3	29, 33, 35	1-5
	6-B	3	25	6-10
Calculate and interpret the five-number summary, z-scores, percentiles, and outliers of data.	6-B	2	27	1-4
	6-C	6	35, 37, 41	8, 9
Construct histograms, box plots, pie charts, scatter plots and demonstrate pros and cons of each.	5-C	3	35	-
	6-B	2	29	-
Show rudimentary understanding of the roles that hypotheses, margin of error, and statistical significance play in research.	6-D	2, 3, 6	31, 45	5, 9
Calculate the margin of error for proportional data, construct and interpret a 95% confidence interval.	6-D	4	37, 39	3, 7
Identify normal, uniform, left and right-skewed distributions.	6-A	6, 7	37, 41	8, 10
Appropriately apply the 68-95-99.7 Rule to both data and population contexts.	6-C	3	29, 43	5, 6, 7

Basic Probability Exam (encompassing Chapter 7, please note that 7-D will not be tested.)

- *Analyze and critique real-world issues and arguments involving probability and statistics.*

Outcomes Students will be able to:	Book Section	Reading Examples	Homework Problems	Quick Quiz
Gain facility with the Complement, And, Or, and At Least Once Rules from basic probability.	7-A	6	73	8, 10
	7-B	1, 3	33, 35, 41, 57	2, 3, 9
Describe and interpret the notion of the Law of Large Numbers and expected value with real applications.	7-C	2, 3	29, 37	5, 8
Discuss, in a cogent manner, the mathematical, social, and moral issues that arise in lottery and other gambling activities, including the gambler's fallacy.	7-C	4, 6	33, 39, 41	2 3, 4, 9
Discuss risk and the role it plays in our society and the decisions we make.	7-D	1	23, 25, 29	3, 5, 8
Show how to count arrangements using repetition, factorials, permutations, and combinations.	7-E	1, 3, 5	21, 33, 37, 41, 49	1, 3, 7, 7