

American University of Central Asia
Master of Business Administration Department
Syllabus – Business Mathematics, MBA 535.1

I. Course Description

This course adopts the empirical approach to mathematics, exploring how to effectively use mathematics in everyday life, and based on common sense.

This course is a good preparation for all other courses taught in the department. In this course we introduce the basic topics of statistics, probability, calculus, linear algebra, Lagrange multipliers.

You will learn the basic concepts of maths to get the instruments for specialized subjects of your major.

II. Students Learning Objectives:

Students who successfully complete this course will be able to:

- understand concept of modern statistics, analyze statistical data;
- infer some conclusions on the given data, make predictions based on hypothesis;
- find probability of independent and conditional events;
- find extremes of the functions
- operate with Matrices and inverses, eigenvectors and eigenvalues
- solve the linear systems of equations
- solve the linear optimization problems

III. Course Policies

- Students are expected to BE ON TIME for classes. If instructor marked the student absent in case that the student is late for the class, he is considered to be absent for the whole class, unless excused by instructor.
- ATTENDANCE. Class attendance is required. If the student misses the class with an excuse, he shall provide necessary documents to prove it within a week after he/she missed a class. If the requirements mentioned above are not observed, student's absence is considered to be unexcused.
- WRITTEN ASSIGNMENTS must be submitted to instructor by the deadline. The student may submit assignment late: at the latest by the next day after the deadline before 5 pm, in that case 1 point will be deducted from the final grade for the work (e.g., if your grade is "A" for the work, after deduction, your grade will be "B"). *This rule applies to any student who was aware or should have*

been aware of an assignment and the deadline no matter whether he was sick or had any other excuse on the date of a deadline.

- The student has to follow ACADEMIC HONESTY code. All types of cheating (plagiarism etc) **are strictly prohibited**. If a student fails to observe this requirement, instructor may give from an “F” for the work up to an “F” for the whole course depending on the type of assignment and other circumstances.

IV. Assessment

a. Grading scale:

The total grade of the student is as follows:

$0 \leq F \leq 40 < D \leq 45 < C-- \leq 50 < C \leq 60 < C+ \leq 65 < B-- \leq 70 < B \leq 80 < B+ \leq 85 < A-- \leq 90 < A \leq 100$

b. Grading will be based on following components:

20 % --- Individual presentation / Homework

30 % --- Mid---Term

40 % --- Final Exam

V. Miscellaneous (as needed or desired)

Prerequisites: undergraduate business mathematics.

Topics include, signed numbers, operations with algebraic expressions, first---degree equations and inequalities in one variable, factoring, the Cartesian coordinate system, systems of first---degree equations in two variables solved by graphical and algebraic means, exponents and radicals, an introduction to quadratic equations, and stated problems, calculus; Probability and Statistics, Linear Algebra

VI. Textbooks and References

1. K. M. Ramachandran, C.P. Tsokos Mathematical Statistic with Application, Elsevier Academic Press, 2009, 849 p.
2. Marcel B. F. A Basic Course in the Theory of Interest and Derivatives Markets: A Preparation for the Actuarial Exam FM/2, Preliminary Draft, 2013, 747 p.
3. Excel 2007 for Teaching Statistics, National Centre for Technology in Education & Project Maths Development Team, 2010, 35 p.
4. E. D. Bolker, M. Mast, Common Sense Mathematics, 2013, 419 p.
5. Mizrahi A., Sullivan M., Mathematics for Business and Social Sciences, 4th ed., John Wiley and Sons, 1988, 875 p.
6. Richard C. Penney Interest Theory, Purdue University, 54 p.

7. Deborah Rumsey Statistics Essentials for Dummies, John Wiley & Sons, 2010, 195 p.
8. Mary Jane Sterling, Business Math for Dummies, Wiley Publishing, Inc., 2008, 410 p.
9. Teach Yourself Basic Probability(<http://mi.eng.cam.ac.uk>), 2013, 32 p.

VII. Course Outline

Week	Date	Topic/Activity	Assignments/ Events
1	30.08.2016 02.09.2016	Introduction to statistics -the population sample paradigm -graphical techniques for summarizing and presenting data	Q1-Q4
2	06.09.2016 09.09.2016	The normal distribution The Empirical Rule Sampling distributions Confidence intervals	
3	13.09.2016 16.09.2016	Correlation and simple regression	
4	20.09.2016 23.09.2016	Introduction to probability Probability statements Probability trees	
5	27.09.2016 30.09.2016	Expected values, means, variances and standard deviations Probabilities on joint events	
6	04.10.2016 07.10.2016	Conditional probability Covariance and portfolios	
7		Midterm	Written exam
8	01.11.2016 04.11.2016	Introduction to functions Graphing functions	
9	08.11.2016 11.11.2016	Functions working on functions Functions with more than one input	
10	15.11.2016 18.11.2016	Linear functions Linearity	
11	22.11.2016 25.11.2016	Realistic problems – practical constraints	
12	29.11.2016 02.12.2016	Derivatives	
13	06.12.2016 09.12.2016	Optimization	
14		Final exam	Written exam