



**JSC «Kazakh-British Technical University»
Business School
Department of “Business and Social Sciences”**

APPROVED
Dean of Business
School
Ewan Simpson
_____ « ____ » _____ 2015

SYLLABUS

Discipline: Data Analysis and Economic Forecasting
Number of credits: 3
Semester: Fall 2015
Instructor: Alex Mosesov

Information on the instructor	Time and place		Contact information		
	Class-Room	Office hours (TSIS)	Tel:	Room	e-mail
PhD, Associate Professor, Business School, KBTU	424	According to schedule	611	345	a.mosesov@kbtu.kz

1. Introduction and Course Description.

The main aim of this course is to provide students with tools in statistics and econometrics that are especially useful in forecasting economic and business time series such as sales, expenditures, and macroeconomic variables such as GDP, interest rates, inflation, stock market, etc.

2. Course Objectives and Intended Learning Outcomes.

Course Objectives

The student will learn

1. Data analysis tools in statistics.
2. Simple regression models.
3. Multiple regression models.
4. Time-series models including moving averages and exponential smoothing forecasting models.

Learning Outcomes

At successful completion of this course, the student will be able to:

- analyze data both graphically and statistically;
- use the time-series models to forecast economic and business time series data such as sales, expenditures, and macroeconomic variables such as GDP, interest rates, inflation;
- use the data analysis tools in Excel to perform complex statistical (or regression) analyses;
- summarize data using frequency distributions;
- make the hypothesis testing;
- estimate the simple regression models;
- make multiple regression analysis.

3. Learning Support Materials

Compulsory

1. *Statistics for Business and Economics, Sixth Edition, Paul Newbold, William L. Carlson, Betty Thorne*
2. *Introduction to Econometrics, Fourth edition, Christopher Dougherty*

Recommended

3. *Quantitative Methods, CFA Level 1 2010*

4. Week by Week Course Outline

#	Title	Description	Text book	Expected Learning Hours		
				Lecture	Tutorial	Self-Study
1	Describing data : numerical and graphical	Graphs to describe time-series data. Graph to describe numerical variable. Frequency distributions. Histograms. Tables and graphs to describe relationships between variables: Scatter plots. Cross tables.	[1], Chapter 2, page 9. [3], R.7, pages 341.	2	1	6
2	Describing data : numerical and graphical	Measures of central tendency. Measures of variability. Weighted mean and measures of grouped data. Measures of relationships between variables.	[1], Chapter 3, page 46.	2	1	6

3	Discrete random variables and probability distributions	Random variables. Probability distributions for discrete random variables. Properties of discrete random variables. Binomial distribution. Normal distribution. Applications of the normal distribution	[1], Chapter 5, page 134. [2], R.2, pages 6.	2	1	6
4	Hypothesis testing	Concepts of hypothesis testing. Tests of the mean of a normal distribution: population variance known.	[1], Chapter 10, page 330.	2	1	6
5	Simple regression	Correlation analysis. Linear regression model. Statistical inference. Goodness of fit R^2 : example of how R^2 is calculated.	[1], Chapter 12, page 402. [2], Chapter 1, page 83.	2	1	6
6	Simple regression	Statistical inference: hypothesis tests and confidence. Prediction. Graphical analysis.	[1], Chapter 12, page 402. [2], Chapter 1, page 83.	2	1	6
7	Properties of the regression coefficients and hypothesis testing	Types of data and regression model. Assumptions for regression model with nonstochastic regressors.	[2], Chapter 2, page 110.	2	1	6
8	Midterm week - Revision/Preparation for midterm exam/ Midterm Exam					
9	Properties of the regression coefficients and hypothesis testing	The random components and unbiasedness of the OLS regression coefficients. Monte Carlo experiment.	[2], Chapter 2, page 110.	2	1	6
10	Multiple regression analysis	Illustration: a model with two explanatory variables. Derivation and interpretation of the multiple regression coefficients.	[1], Chapter 13, page 454. [2], Chapter 3, page 151.	2	1	6
11	Multiple regression analysis	Estimation of coefficients. Properties of the multiple regression coefficients.	[1], Chapter 13, page 454. [2], Chapter 3, page 151.	2	1	6
12	Multiple regression analysis	Multicollinearity. Goodness of fit R^2 . Prediction.	[1], Chapter 13, page 454. [2], Chapter 3, page 151.	2	1	6
13	Time-series analysis and forecasting	Components of a time series. Moving averages.	[1], Chapter 19, page 710. [2], Chapter 11, page 391.	2	1	6
14	Time-series analysis and forecasting	Exponential smoothing forecasting model.	[1], Chapter 19, page 710. [2], Chapter 11, page 391.	2	1	6
15	Time-series analysis and forecasting	Exponential smoothing forecasting model.	[1], Chapter 19, page 710. [2], Chapter 11, page 391.	2	1	6
16-17	Final Exam					

NB: A three credit course should cover 45 lecture and tutorial hours and 90 hours of self study

8. Grading policy

At the end of the semester a total final score, which is a cumulative measure of your work throughout the semester is calculated. The final rating will be offered according to the scale of assessments adopted in KBTU

- If a student has less than 30 points out of 60 cumulative for Attestation 1 and 2, the student gets a Fail on the course.
- If a student gets less than 50% on the final examination (less than 20 points out of 40), the student gets a Fail on the course.
- If a student misses the final examination (without good reason) - the student gets a Fail on the course.

The grading scale is as follows:

95-100	A	75-79	B-	55-59	D+
90-94	A-	70-74	C+	50-54	D
85-89	B+	65-69	C	Below 50	F
80-84	B	60-64	C-		

9. Academic Integrity

Any time you put your name on a piece of work for this source you are asserting that it is your own work. If it is not the case, it is plagiarism. You must report, in proper citation format, the source of information used in a paper. Direct quotes must be denoted by quotation marks and page references. Plagiarism is classed as cheating and will be dealt with according to the policies and procedures of KBTU.

Cheating on exams and assignments will not be tolerated and will be dealt with according to the policies and procedures of KBTU.

10. Conduct

Students are required:

- to be respectful to the teacher and other students;
- to switch off mobile phones during classes;
- to meet the deadlines;
- to come to classes prepared and actively participate in classroom work;
- to enter the room before the teacher starts the lesson;
- to attend all classes. No make-up tests are allowed unless there is a valid reason for missing them;
- to follow KBTU academic policy regarding **W, AW, I, F** grades.

Students are encouraged to

- consult the teacher on any issues related to the course;
- make any proposals on improvement of the academic process;
- monitor their continuous assessment throughout the semester.

Students must abide by all course management issues according to KBTU policies and procedures. Should students wish to raise issues regarding their grades, they must follow KBS and KBTU procedures.

Should students wish to raise issues regarding the conduct of the instructor, they should contact the Office of the Dean, Room 457.

Course Moderator _____

Chair of the Department _____

Approved by the meeting of the Department of Business and Social Sciences
Meeting number: _____

Date: _____

Appendix 1: Common Goals, Objectives and Intended Learning Outcomes of Programs

The KBS bachelor programs have a common set of goals, objectives, learning objectives and ILOs. In addition, each program has a unique set of learning objectives and ILOs. In this section, the common sets are specified. The unique sets of each program are stated under the specific programs.

The overarching *common goals* of all undergraduate business programs are to:

- offer undergraduate programs in business administration with integrated multi-disciplinary curriculum and comparable, in terms of quality and standards, to leading programs offered at universities in Europe and the US;
- educate and develop business leaders capable of effectively managing organizations in Kazakhstan and internationally, in an ethical manner; and
- prepare graduates who will make significant contributions to the community in which they work, whether in business or in the public and non-profit sectors

Common Objectives of Programs

The common objectives of all programs are to:

- provide students with undergraduate-level, cross-functional knowledge in the areas of Economics, Accounting, Finance, Management, Marketing, Information Systems, Operations Management, Business Law and Taxation;
- foster students' critical thinking, analytical and communication skills;
- provide a solid foundation knowledge to graduates who want to pursue graduate study in the field of business and related disciplines;
- educate undergraduate students for ethical service to their society and the broader regional and international community; and
- provide specialized knowledge and develop necessary skills for successful careers in one of the areas of Accounting and Audit, Finance, Management and Marketing.

Common Learning Objectives for Undergraduate Programs

The common learning objectives of all undergraduate business programs are to ensure that graduates have:

- A satisfactory knowledge of:
 - the micro-economic business issues and macro-economic business environment;
 - the core business disciplines of Accounting, Finance, Marketing, Management, Operations Management, Information Systems Business Law and Taxation; and
 - quantitative and qualitative techniques of problem solving;
- The necessary cognitive, inter-personal and self-management skills to:
 - communicate ideas and information clearly and effectively in written and oral English;
 - use information technology for the retrieval, analysis and presentation of information;
 - work effectively with others in the pursuit of common objectives;
 - undertake supervised independent research and internship, involving the synthesis and application of theoretical constructs to topics in the fields of business, with a specific focus on Kazakhstan and Central Asia; and
 - describe the interdisciplinary nature and challenges of business operations and apply cross-functional knowledge for strategic management of organizations
 - ethics as they apply both to general business practices and in the area of specialization.

Common Intended Learning Outcomes for Undergraduate Programs

At successful completion of each program, students will be able to:

- describe and articulate key concepts and major paradigms and theoretical perspectives within the discipline of business administration;
- identify and apply various decision making tools and techniques in functional areas of Accounting, Finance, Management and Marketing;
- analyze and solve business problems, using the necessary quantitative and qualitative tools;

- use information technology for the retrieval, analysis, and presentation of information for effective management of business organizations;
- communicate ideas and information clearly and effectively in written and oral English;
- describe and apply the concepts and theories of ethics as they apply to business organizations;
- synthesize and apply integrated knowledge for effective strategic management of organizations; and
- undertake supervised practical training and independent research, involving the synthesis and application of theoretical constructs to topics in the fields of business.

Appendix 2: Objectives and Intended Learning Outcomes of the BACHELOR OF FINANCE

The purpose of the BFIN program is to train students with specialized knowledge and skills in the field of Finance, in addition to the common knowledge and skill set in business administration.

Objectives

To prepare graduates who have a thorough knowledge of:

- the theory and application of corporate finance;
- the fundamentals of investment analysis and portfolio management; and
- nature, structure, and functions of financial institutions.
- regulation, supervision and management of financial institutions.

Intended Learning Outcomes

At successful completion of the Bachelor in Finance program, graduates will be able to:

- describe and apply capital budgeting techniques in evaluating investment decisions;
- demonstrate analytical and computational skills in determining the optimal level of capital structure;
- analyze the current business and investment environment (domestic and international), including the effect of changes in exchange rates, interest rates, and inflation, in making investment and portfolio management decisions;
- explain and apply the methods of evaluating portfolio performance;
- demonstrate knowledge in analyzing financial statements of banks and banking operations and performance;
- describe financial regulations and supervision requirements and demonstrate computational skills in calculating the capital adequacy ratio; and
- Describe and apply the concepts and theories of ethics as they apply to the field of Finance.

Appendix 3: Unique Learning Objectives and Intended Learning Outcomes of the BACHELOR OF MANAGEMENT program

Learning Objectives

The purpose of the BMGT program is to train bachelor of business students with specialized knowledge and skills in the field of Management, in addition to the common knowledge and skills set in business administration.

To prepare graduates who will have a thorough knowledge of:

- the core management concepts such as decision making, human resource management, leadership and motivation, global business and strategic management;
- a solid understanding of managing diversity, critical thinking, and managerial ethics;
- a solid grounding in the knowledge, theory and practice of general management.

Intended learning outcomes

At successful completion of the BMGT program, graduates will be able to:

- describe the core concepts of management theory, knowledge and practice;
- communicate on a professional level using contemporary communication technologies;
- apply appropriate analytical tools for planning, development and implementation of strategy;
- demonstrate managerial competences for leading people and organizations toward organizational success in competitive environments, local and global;
- identify diverse managerial roles and exercise judgment in highly dynamic and complex business environments; and
- Describe and apply the concepts and theories of ethics as they apply to the field of Management.