

American University - Central Asia Economics Department
MAT533 «Dynamic Models for Economics and Business»

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Unfortunately there isn't enough time to study dynamic models, described by difference and differential equations at Introduction and Intermediate Courses of Finite Mathematics and Calculus. Almost all of time is devoted to static's models (determine of market equilibrium point, break-even point, linear algebraic equations and systems, derivatives and its applications) at Math Courses.

In this situation when we making decision use Quantitative Methods we doing as owner of firm who use only a part of firms' equipment and this case it is the simplest part. An effort to overcome this weakness will be made in suggested course.

At the lessons we will discuss the price making on different type of oligopoly markets, the changing of GDP, ... a conversation about Evans model, cob-web model, model of Samuelsson-Hicks, ... will take place at course.

Literature

1. С.К. Кыдыралиев. *Разностные и дифференциальные уравнения с приложениями*. Бишкек. 2011.
2. W.Sharp, G.Alexander, D.Bailey. *Investment*
3. С.К. Кыдыралиев, Урдалетова А.Б. *Удивительные прогрессии*. Бишкек, Кенеш. 2014.
4. Alan Hoenig. *Finite Mathematics*.
5. M.B. Cozzens & R.D. Porter. *Mathematics with Calculus*.
6. S.K. Kydyraliev, ... *Difference equations with applications*. Бишкек. 2011.

SCHEDULE OF TOPICS

Topics
Arithmetic and Geometric Progressions The Simplest Linear Difference Equations of the 1-st Kind. Applications: Market equilibrium: Evans model, cob-web model. Rate of Unemployment. Inflation. The changing of GDP.
Test №1 The General Linear Differential Equations of the 1-st kind. The Linear Difference Equations of the Highest Kind. Generalized cob-web model. The Linear Differential Equations of the Highest Kind.
Test №2 The Systems of Linear Difference Equations of the 1-st Kind. The price making on oligopoly markets. The model of Samuelsson-Hicks. Markovs' chains The Systems of Linear Differential Equations of the 1-st Kind.
Final Test

Course Requirements and their weight in the final grade are:

- Quiz №1 – 20; Quiz №2 – 20; Final test – 40; Activity, presentation and microquizes – 20.

Tests rewriting is prohibited. If a student misses a quiz due to valid (from the instructor's point of view) reasons, the maximum amount of points he/she can get on final test will be 50. If the reason for missing a test is invalid, the student's final test will be evaluated out of 40 points.

A student, who missed the final test due to valid (from the instructor's point of view) reasons, may be given an opportunity to write it at the time specified by the chair, but the maximum amount of points he/she can get will be 35 points. If a quiz is missed due to invalid reasons, a student will earn no points for it.

In case of missing 2 quizzes or quiz and final test, irrespective of the reason, a student will not be attested.

For every missing lesson a student loses 1 point. If a student misses more than 10 classes due to invalid reasons, he will be dismissed from the course with the grade of X.

A student's independent work will be included into the midterm and final tests. The instructor establishes the way the student's knowledge will be tested.

Grading Scale:

A	A-	B+	B	B-	C+	C	C-	D	F
100-90	85<	80<	75<	70<	65<	60<	55<	45<	< 45

In Class and Exams Requirements:

- No cell phones (turn them off during the classes).
- You are not allowed to leave the room during the exam.