



# ÇANKAYA UNIVERSITY

## Faculty of Economics and Administrative Sciences

### Course Definition Form

#### Part I. Basic Course Information

<b>Department Name</b>	BANKING AND FINANCE	<b>Dept. Numeric Code</b>	3 5
<b>Course Code</b>	B A F 2 0 1	<b>Number of Weekly Lecture Hours</b>	3
		<b>Number of Weekly Lab/Tutorial Hours</b>	0
<b>Course Web Site</b>	http:// bf.cankaya.edu.tr	<b>Number of Credit Hours</b>	3
		<b>ECTS Credit</b>	0 6

#### Course Name and Other Course Information

*This information will appear in the printed catalogs and on the web online catalog.*

<b>English Name</b>	Financial Mathematics
<b>Turkish Name</b>	Finansal Matematik
<b>Mode of Delivery</b>	Face to face
<b>Language of Instruction</b>	English

#### Course Description

*Provide a brief overview of what is covered during the semester. This information will appear in the printed catalogs and on the web online catalog. Maximum 60 words.*

This course provides the students a detailed examination of time value of money, present and future value calculations, valuation of annuities, perpetuities, bonds and stocks as well as net present value. Amortization, simple interest, compound interest, effective annual rate, real interest rates and cash flows are among the important topics that will be highly practiced.

<b>Prerequisites</b> (if any) <i>Give course codes and check all that are applicable.</i>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
	<input type="checkbox"/> Consent of the Instructor	<input type="checkbox"/> Senior Standing	<input type="checkbox"/> Give others, if any.	
<b>Co-requisites</b> (if any)	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
<b>Course Type</b> <i>Check all that are applicable</i>	<input checked="" type="checkbox"/> Must course for dept. <input type="checkbox"/> Must course for other dept.(s) <input type="checkbox"/> Elective course for dept. <input checked="" type="checkbox"/> Elective course for other dept.(s)			

**Part II. Detailed Course Information****Course Objectives***Maximum 100 words.*

Through equipping the students both with the theoretical background and the required analytical ability, the main objective of this course is to provide the students a comprehensive grasp of the financial mathematics techniques and the applications used to value financial assets and investment decisions. Besides, it provides a detailed explanation of the related vocabulary and concepts.

**Learning Outcomes***Explain the learning outcomes of the course. Maximum 10 items.*

After successfully completing this course, the students will be able to:

- calculate the present values and future values
- explain the interest rate concept (simple and compound interest, effective annual rate and annual percentage rate, real and nominal interest) and learn how to treat inflation
- handle financial asset valuation such as annuities, perpetuities, bonds and stocks
- explain the effect of market interest rate on bond price and duration
- calculate and explain the yield to maturity and rate of return of a bond as well as the effect of time to maturity on bond value
- discuss the stock valuation and the relationship between stock price and earnings per share
- calculate the net present value (NPV) of projects

**Textbook(s)***List the textbook(s), if any, and other related main course material.*

Author(s)	Title	Publisher	Publication Year	ISBN
BREALEY Richard R., MYERS Stewart C., and Franklin ALLEN	Principals of Corporate Finance	McGraw-Hill	2009	978-007-126326-9

**Reference Books***List, if any, other reference books to be used as supplementary material.*

Author(s)	Title	Publisher	Publication Year	ISBN
BREALEY Richard R., and MYERS Stewart C.	Principals of Corporate Finance	McGraw-Hill	2003	0-07-115144-3
Ramazan Aktaş, Ali Alp, Mete Doğanay, Ekin Tokat	Temel Finans Matematiği	Gazi Kitabevi	2007	978-9944-165-42-6

**Teaching Policy***Explain how you will organize the course (lectures, laboratories, tutorials, studio work, seminars, etc.)*

In conducting the course, lectures will be accompanied with exercise problems and case studies to provide the students a better practical expertise.

**Laboratory/Studio Work***Give the number of laboratory/studio hours required per week, if any, to do supervised laboratory/studio work and list the names of the laboratories/studios in which these sessions will be conducted.*

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**Computer Usage***Briefly describe the computer usage and the hardware/software requirements for the course.*

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<b>Course Outline</b> <i>List the weekly topics to be covered.</i>	
Week	Topic(s)
1	The Time Value of Money: Future Values, Present Values, Simple Interest and Compound Interest
2	Valuation of Multiple Cash Flows and NPV
3	Valuation of Perpetuities and Growing Perpetuities
4	Valuation of Annuities, Annuity Dues and Growing Annuities
5	Deposit Returns, Credit Costs, Credit Amortization
6	Inflation: Real Interest rate and Real Cash Flows; Effective Annual Interest Rates
7	Midterm Week
8	Net Present Value
9	Value Concepts in Bonds, Bond Valuation, Basic Relationships and Various Bond Types
10	Yield to Maturity and Interpolation
11	Basic Factors Affecting the Market Price of Bonds, Maturity, Risk and Duration
12	Value Concepts in Stocks, Stock Valuation: General Stock Price Formula and Dividend Discount Models
13	The Relationship between EPS and Stock Price, Present Value of Growth Opportunities
14	Closing Remarks with the Overview of Other Stock Valuation Models

<b>Grading Policy</b> <i>List the assessment tools and their percentages that may give an idea about their relative importance to the end-of-semester grade.</i>								
Assessment Tool	Quantity	Percentage	Assessment Tool	Quantity	Percentage	Assessment Tool	Quantity	Percentage
Midterm Exam	1	40						
Final Exam	1	50						
Class Participation	14	10						

<b>ECTS Workload</b> <i>List all the activities considered under the ECTS.</i>			
Activity	Quantity	Duration (hours)	Total Workload (hours)
Attending Lectures ( <i>weekly basis</i> )	14	3	42
Attending Labs/Recitations ( <i>weekly basis</i> )			
Preparation beforehand and finalizing of notes ( <i>weekly basis</i> )	14	2	28
Collection and selection of relevant material ( <i>once</i> )	1	2	2
Self study of relevant material ( <i>weekly basis</i> )	14	3	42
Homework assignments			
Preparation for Quizzes			
Preparation for Midterm Exams ( <i>including the duration of the exams</i> )	1	15	15
Preparation of Term Paper/Case Study Report ( <i>including oral presentation</i> )			
Preparation of Term Project/Field Study Report ( <i>including oral presentation</i> )			
Preparation for Final Exam ( <i>including the duration of the exam</i> )	1	20	20
<b>TOTAL WORKLOAD / 25</b>			<b>149/25=5,96</b>
<b>ECTS Credit</b>			<b>6</b>

**Program Qualifications vs. Learning Outcomes** Consider the program qualifications given below as determined in terms of learning outcomes and acquisition of capabilities for all the courses in the curriculum. Look at the learning outcomes of this course given above. Relate these two using the Likert Scale by marking with X in one of the five choices at the right.

No	Program Qualifications	Contribution				
		0	1	2	3	4
BAF-1	Be able to monitor and analyze the dynamics of banking and financial markets.				x	
BAF-2	Be able to utilize the basic knowledge that obtained with an interdisciplinary approach to business, economics, etc. in creating expertise in the fields of Banking and Finance in accordance with the requirements of the globalized business environment.				x	
BAF-3	Be able to identify and analyze the validity of theories related to the banking and finance and their relationships regarding current conditions.				x	
BAF-4	Have a good knowledge of the regulations and legislation underpinning the financial markets and institutions.			x		
BAF-5	Have the ability to efficiently perform all responsibilities of managerial finance within a corporation.			x		
BAF-6	Be able to use quantitative techniques and methods that are predominantly used in banking and finance.					x
BAF-7	Be able to use the theoretical and practical knowledge obtained in his/her field in analyzing and evaluating data.				x	
BAF-8	Be able to construct, analyze and interpret financial and economic models					x
BAF-9	Be able to understand and evaluate the problems in banking and finance and to discuss and express his/her opinions clearly.				x	
BAF-10	Gain self-evaluation skills to identify exactly his/her self-learning and self-improvement needs, being at the same time equipped with the capacity to follow advanced courses and degree studies.				x	
BAF-11	To maintain scientific, social, and ethical standards when collecting, interpreting, and disseminating financial information, and in application of financial ideas.			x		

Scale for contribution to a qualification: 0-none, 1-little, 2-moderate, 3-considerable, 4-highest