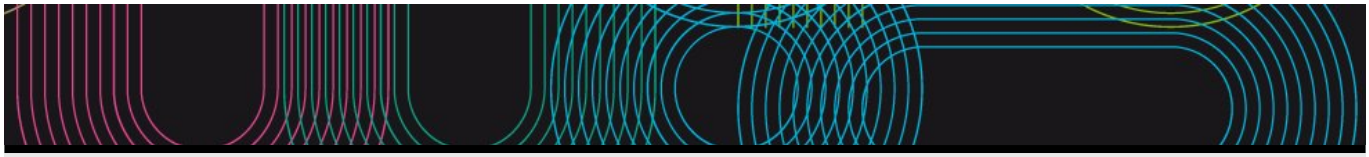
Universidade Vigo

Subject Guide 2019 / 2020



IDENTIFYING DATA				
Business: Mathematics of financial transactions				
Subject	Business: Mathematics of financial transactions			
Code	V03G720V01213			
Study programme	(*)PCEO Grao en Administración e Dirección de Empresas/Grao en Dereito			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	2nd	1st
Teaching language	Spanish			
Department				
Coordinator	Rodríguez Parada, Sonia			
Lecturers	Rodríguez Parada, Sonia			
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General description	Financial Mathematics is a subject that opens the door to financial understanding and introduces the student into the logical rationale of financial valuation. This knowledge is fundamental to make right decisions and properly appreciating information in the field of Finance and Accounting. Under the basic principle of the time value of money, the student fully comprehends and applies the mathematical-financial methodology to the analysis of the most frequent financial transactions.			

Competencies
Code

Learning outcomes	
Expected results from this subject	Training and Learning Results
Application of the most appropiate financial valuation tools to address the proposed issues	
Fluency in solving basic financial problems and adequately interpreting the results	
Ease in use technical vocabulary and financial mathematics symbols	
Good judgment concerning the consistency of the performed financiial calculation	
Application of financial functions on spreadsheets	
Efficient learning management	
Identification of the general field of Financial Mathematics	
Analysis of the essential financial transaction features	
Extension of financial valuation rationale to new transactions	
Management of realiable and up-to-date economic and financial information sources	
Use of feedback within the learning process	
A respectful attitude towards others and oneself throughout the learning process	
Self-evaluation concerning subject learning progress	

Contents	
Topic	
1. Basic Concepts of Financial Mathematics	1.1. The value of Money 1.2. Types of Time and Interest 1.3. Equations of Value 1.4. Principles

2. Capitalization: Simple Interest and Compound Interest	2.1. Simple Interest 2.1.1. Present Value Formula 2.1.2. Future Value Formula 2.2. Compound Interest 2.2.1. Present Value Formula 2.2.2. Future Value Formula 2.3. Nominal Rates and Effective Interest 2.4. Comparing Simple and Compound Interest
3. Discount Interest	3.1. Discount Interest Basic Formulas 3.2. Comparing Simple and Discount Interest 3.3. Discounting Negotiable Instruments
4. Annuities	4.1. Ordinary Annuities or Annuity immediate 4.1.1. The Future Value of an Ordinary Annuity 4.1.2. The Present Value of an Ordinary Annuity 4.2. Annuitie due 4.3. Deferred Annuities 4.4. Forborne Annuities 4.5. Perpetuities
5. Amortization of Debts	5.1. Methods of Amortization 5.2. Amortizations Schedule 5.3. Outstanding Balance 5.4. Refinancing Loans
6. Constitution of Capital	6.1. Methods of a Savings Program 6.2. Types of Constitution 6.3. Constitution Schedule
7. Cost and Return on Financial Transactions	7.1. Simple Financial Transactions 7.2. Complex Financial Transactions

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	22.5	40	62.5
Problem solving	22.5	45	67.5
Autonomous problem solving	2.5	2.5	5
Autonomous problem solving	2.5	2.5	5
Problem and/or exercise solving	3	7	10

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Lecturing	The teacher explains the most relevant and difficult conceptual subject matter in the classroom. Examples are chosen to clarify concepts. 15 sessions, 90 minutes per session. Attendance required
Problem solving	In the practical sessions, students are offered a set of exercises and several cases. The teacher will guide the students through the exercises to solve the problems after a brief debate in class. Students are additionally offered a set of exercises to solve on their own. This forms part of the on-going evaluation of the student. 9 sessions, 150 minutes per session. Attendance required
Autonomous problem solving	Two tutorials are held in small groups: Tutorial I, at about mid-course, aims: a) To carry out a general review of the first part of the program and address pending doubts. b) To follow up on the knowledge and skill acquired in the practice of the first part of the syllabus thtough a basic level written test. This forms part of the on-going evaluation of the student. 1 session, 150 minutes. Attendance required Tutorial II, at the end of the course, aims: a) To carry out a general review of the second part of the program and address pending doubts. b) To follow up on the knowledge and skill acquired in the practice of the second part of the syllabus thtough a basic level written test. 1 session, 150 minutes. Attendance required

Autonomous problem solving	Online course called Virtu@l MOF, a digital resource for collaborative learning. The student has an online course specifically designed to encourage their learning process following the subject programme and the paced rhythm of the classroom. It includes the lessons of the programme in digital format and pdf format for printing, with learning objetives, self-assessments, examples of each concept, glossaries, practice statement, suggested activities and recommended links and bibliography. In additon, at the end of each teaching unit, the student may check the level of progress achieved in each lesson by talking a self-assements test, with pesonalized feedback. Other didactic resources, such as exams from other academic years, are also included. Virtual Classroom

Personalized assistance

Methodologies	Description
Autonomous problem solving	
Autonomous problem solving	

Assessment

	Description	Qualification	Training and Learning Results
Autonomous problem solving	(*)Segunda proba básica de curta duración, que forma parte da AVALIACIÓN CONTINUA do alumnado.	25	
Autonomous problem solving	(*)Primeira proba básica de curta duración, que forma parte da AVALIACIÓN CONTINUA do alumnado.	25	
Problem and/or exercise solving	Final exam mark Maximun 10 points This is a written test, taken on site on the official calendar date, that evaluates the acquisition of theoretical competences, practical skills in applying financial logic to new situations. This is assessed at three leves: basic, intermediate and advanced.	50	

Other comments on the Evaluation

The teacher informs the students about everything related to on-going assessment on the first day of the course. The student is provided with a week by week planned learning schedule.
The teacher also presents the online course specifically designed for learning Financial Mathematics. This online course follows the syllabus and the real-time progress of the lessons.
The students' on-going evaluation mark is kept exclusively in the academic year in which it is obtained.

Sources of information

Basic Bibliography

Rodríguez Sánchez, J. A. y Rodríguez Parada, S. M., **MOF Virtu@l: un recurso para el aprendizaje colaborativo**, 2018
Pablo López, A. de, **Matemática de las operaciones financieras I y II**, 2000
Pablo López, A. de, **Manual práctico de Matemática comercial y financiera. Tomos I y II.**, 2001

Complementary Bibliography

Guthrie, G. L. & Lemon, L. D., **Mathematics of Interest Rate and Finance**, 2004

Recommendations

Subjects that continue the syllabus

Investment decisions/V03G020V01402

Other comments

This subject in the double degree in Business Administration and Management/Law School is taught in the 1st quarter of the 2nd year.
Sonia M. Rodríguez Parada is the Coordinating Professor.