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| General Information |  | | |
| Academic subject | Financial mathematics | | |
| Degree course | Marketing and Business Communication | | |
| Curriculum |  | | |
| ECTS credits | 6 | | |
| Compulsory attendance | No | | |
| Language | Italian | | |
|  |  | | |
| Subject teacher | Name Surname | Mail address | SSD |
|  | Sabrina Diomede | sabrina.diomede@uniba.it | SECS-S/06 |
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| ECTS credits details | 6 |  |  |
| Basic teaching activities | lectures |  |  |
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| Class schedule |  | | |
| Period | II | | |
| Year | 2 | | |
| Type of class | Lectures | | |
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| Time management |  | | |
| Hours | 48 (academic hours) | | |
| Hours of lectures | 40 | | |
| Tutorials and lab | 8 | | |
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| Academic calendar |  | | |
| Class begins | 02/2023 | | |
| Class ends | 05/2023 | | |
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| Syllabus |  | | |
| Prerequisites/requirements | Completion of the examination “Mathematics for economics” | | |
| Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS) | Demonstrate understanding of basic concepts in financial transactions.  Demonstrate capability to estimate the value of annuities  Use appropriate terminology to convey basic financial tools and notions.  Demonstrate basic knowledge of preference relations and utility functions | | |
| Contents |  | | |
| Course program | **Decision making under certainty**  Financial operations.  Discounting and capitalization. Application to the estimate of some indexes in marketing: the notions of Customer and Prospect lifetime value  Compound and simple interest formulae.  Zero coupon and fixed rate bonds.  Estimating the value of financial operations.  Hints on numerical series; geometric series.  Annuities ( classification, ordinary and deferred annuities. ordinary perpetuities, present and future value of annuities)  Equivalent interest rates.  Discounted net profit, Internal Rate of Return  Amortization ( preamortization, amortization schedule with equal principal payments or with constant payments)  Time indexes. Duration.  Basic notions of differential calculus for 2 variables functions.  First-order conditions for unconstrained and constrained optimization.  **Choices under uncertainty**  Rational preferences  Representation of choice structure by means of utility functions  Pareto dominance | | |
| Bibliography | F. Cacciafesta: Matematica finanziaria (classica e moderna) Giappichelli Ed. Torino. (ch. 1, par. 1-5), ch.2, (par. 1-5), ch. 3 (par. 1,2), ch. 4 (par. 1-7)ch. 5 (par. 1-5)  For Erasmus students: E. Castagnoli, M. Cigola, L. Peccati. Financial calculus with applications. Egea, 2013. | | |
| Notes |  | | |
| Teaching methods | Lectures | | |
| Assessment methods (indicate at least the type written, oral, other) | Written assessment with three questions.  As an alternative the attending students may take a midterm (written) exam which has to be integrated with an oral exam concerning the “Choices under uncertainty” part. | | |
| Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are. | The answers will be evaluated by:  completeness of presentation with respect to the contents of the course ,  correctness of mathematical reasoning,  articulation of presentation,  command of mathematical and technical language. | | |
| Further information |  | | |