

**OSTİM TECHNICAL UNIVERSITY
FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION
COURSE SYLLABUS FORM**

| BUS 103 Business Mathematics I | | | | | | | |
|---------------------------------------|--------------------|---------------|--------------|--------------------|-------------------|---------------|-------------|
| Course Name | Course Code | Period | Hours | Application | Laboratory | Credit | ECTS |
| Business Mathematics I | BUS 103 | Fall | 3 | 0 | 0 | 3 | 5 |

| | |
|---|---|
| Language of Instruction | English |
| Course Status | Compulsory |
| Course Level | Bachelor |
| Learning and Teaching Techniques of the Course | Lecture, Discussion, Question Answer, Problem Solving |

| Course Objective |
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| This course introduces students to the mathematical concepts and applications necessary for successful business careers. The contents of the course include language of algebra, fundamentals of calculus, basic mathematical operations, solving equations, functions, simple and compound interests. |

| Learning Outcomes |
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| <p>The students who succeeded in this course will be able to;</p> <ol style="list-style-type: none"> 1. recognize the numbers, arithmetic operations 2. recognize the elementary algebra 3. do basic financial calculations 4. solve the equations |

| Course Outline |
|--|
| Numbers and arithmetic operations, elementary algebra, applications in business, fundamentals of calculus I: differential calculus |

| Weekly Topics and Related Preparation Studies | | |
|---|---|--|
| Weeks | Topics | Preparation Studies |
| 1 | Review of Introductory Mathematics | Terminology: Basic mathematical symbols and definitions. Four Basic Arithmetic Operations Basic mathematical operations of addition, Subtraction, multiplication, and division of whole numbers. |
| 2 | Fractions and Decimals | Basic operations of addition, subtraction, multiplication, and division using fractions and in decimal form |
| 3 | Exponents and Radicals | Addition, subtraction, multiplication, and division of numbers with exponents and radicals, basic rules of exponents, simplifying radicals, converting radicals into exponential form |
| 4 | Operations with Algebraic Expressions | Addition, subtraction, removing grouping, multiplication, factoring |
| 5 | Percentages | Conversion between percent, decimals, and fractions. |
| 6 | Algebra: Linear and Quadratic Equations | Solving linear equations, ratio and proportion, solving quadratic equations, applications of equations |
| 7 | Algebra: Simultaneous Equations | Solving for two and three unknowns using simultaneous equations |
| 8 | Mid-term Exam | |
| 9 | Functions and Lines | Solving functions, inverse functions, case-define functions, factorials, symmetry, slope of a line, demand and supply functions, elasticities |
| 10 | Logarithms | Natural and common logarithm, basic rules of logarithm |
| 11 | Matrix Algebra | Matrices, equality of matrices, transpose of a matrix, special matrices, scalar multiplication, subtraction of matrices, matrix multiplication |
| 12 | Matrix Algebra | Identity matrix, solving systems by reducing matrices, matrix equations, inverse of a matrix, Leontief matrix |
| 13 | Business Applications | the percentage ratio of profit / loss and cost, time of the value (simple and compound interest, etc.) |
| 14 | Business Applications | discounted present value, net present value |
| 15 | Business Applications | return, expected value, bond pricing |
| 16 | Final Exam | |

Textbook(s)/References/Materials:

Main Text Book:

Haeussler, E.F., Paul, R., Wood, R. Introductory Mathematical Analysis. Pearson, 2022.

Supplemantry Documents:

1. Calaway S., Hoffman D., Lippman D. Business Calculus. Opentextbookstore.com, 2013.
2. J.Oliver. Business Math: A-Step-by-Step Handbook. Lyryx Version 2021-B, 2021.
3. Marecek L., Intermediate Algebra, OpenStax, 2017.

| Assessment | | |
|---|--------|-------------------------|
| Studies | Number | Contribution margin (%) |
| Attendance | 14 | %0 |
| Lab | 0 | %0 |
| Classroom application and performance | 0 | %0 |
| Field Study | 0 | %0 |
| Course-Specific Internship (if any) | 0 | %0 |
| Quizzes / Studio / Critical | 0 | %0 |
| Homework | 0 | %0 |
| Presentation | 0 | %0 |
| Projects | 0 | %0 |
| Report | | %0 |
| Seminar | | %0 |
| Midterm Exam / Midterm Jury | 1 | %40 |
| General Exam / Final Jury | 1 | %60 |
| Total | | %100 |
| Success Grade Contribution of Semester Studies | | %40 |
| Success Grade Contribution of End of Term | | %60 |
| Total | | %100 |

| ECTS / Workload Table | | | |
|---|-----------------------|-------------------------|-----------------------|
| Activities | Number | Duration (Hours) | Total Workload |
| Course hours (Including the exam week: 16 x total course hours) | 16 | 3 | 48 |
| Laboratory | | | |
| Application | | | |
| Course-Specific Internship | | | |
| Field Study | | | |
| Study Time Out of Class | 16 | 4 | 64 |
| Presentation / Seminar Preparation | | | |
| Projects | | | |
| Reports | | | |
| Homework | | | |
| Quizzes / Studio Review | | | |
| Preparation Time for Midterm Exam / Midterm Jury | 1 | 4 | 4 |
| Preparation Period for the Final Exam / General Jury | 1 | 4 | 4 |
| Total Workload/25 hours | (120/25 = 4.8) | | |
| ECTS | 5 | | |

| Relationship Between Course Learning Outcomes and Program Competencies | | | | | | |
|--|--|--------------------|---|---|---|---|
| No | Learning Outcomes | Contribution Level | | | | |
| | | 1 | 2 | 3 | 4 | 5 |
| L01 | To recognize the numbers, arithmetic operation | | | | | X |
| L02 | To recognize the elementary algebra | | | | | X |
| L03 | To do basic financial calculations | | | | | X |
| L04 | To solve the equations | | | | | X |
| L05 | To combine maths and different business applications | | | | | X |

| Relationship Between Course Learning Outcomes and Program Competencies | | | | | | | |
|--|---|-------------------|-----|-----|-----|-----|--------------------|
| No | Program Competencies | Learning Outcomes | | | | | Total Effect (1-5) |
| | | L01 | L02 | L03 | L04 | L05 | |
| 1 | Know the basic concepts and practical information about the science of business administration and core business activities | | | X | X | X | 3 |
| 2 | Evaluate global and local issues by using ideas and concepts from the field of business administration; examine and analyze management related information and applications in line with scientific principles by using appropriate qualitative and quantitative methods; interpret and synthesise the data and find solutions to business related problems | X | X | X | X | X | 5 |
| 3 | Take responsibility as a member of an interdisciplinary team to solve unpredictable and complex business problems; be able to work effectively in teams of various functions and disciplines; effectively carry out project activities | X | X | X | X | X | 5 |
| 4 | Carry out independent studies in the field by utilizing obtained knowledge and skills | X | | | X | X | 3 |
| 5 | Set goals and objectives for the institution he/she works at; detect and solve basic problems; analyze the internal and external environment of the business; evaluate the developments, support continuous improvement and provide innovative strategies | | | X | X | X | 3 |
| 6 | Acquire the skill to manage activities aimed at the improvement of the employees as a leader, make decisions and implement them | | | X | | X | 2 |
| 7 | Acquire the entrepreneurship skill; design and manage a business; promote innovativeness and sustainability | | | X | | X | 2 |
| 8 | Maintain life-long learning activities; achieve self-improvement; follow higher level educational programs | X | X | | | X | 3 |

| | | | | | | | |
|---------------------|--|---|---|---|---|---|-----------|
| 9 | Inform stakeholders with a sense of social responsibility as an individual with effective communication skills; share his/her emotions, thoughts and solutions to problems verbally and in writing; understand the behaviors and psychology of his/her colleagues | | | X | | | 1 |
| 10 | Use the information and communication technologies and computer software required by the field | | | | | X | 1 |
| 11 | Effectively use English to follow, read, write and speak about the universal information in the field of business and management sciences and be able to communicate with colleagues in a foreign language with professional proficiency | X | | X | | X | 3 |
| 12 | Act according to the law in all his/her affairs; have a sense of professional and ethical responsibility and code of business conduct and act in line with social values | | | | | X | 1 |
| 13 | Be aware of the contemporary business problems as well as the interdisciplinary scope of business administration and analyze these; have the competence to understand the effects of business and management sciences on these problems on a universal, environmental, legal, social and societal level and in terms of health, security and globalization | X | X | X | X | X | 5 |
| 14 | Give research proposals, be able to design research studies, prepare and present research reports | | | | X | | 1 |
| 15 | Manage work time and personal time; fulfil the requirements of his/her duties on time | X | X | X | X | X | 5 |
| 16 | Have the competence to work in non-governmental organizations, private sector and public entities | | | | X | | 1 |
| Total Effect | | | | | | | 42 |

| Policies and Procedures | |
|-------------------------|---|
| Web page: | https://www.ostimteknik.edu.tr/business-administration-1240/907 |
| Exams: | The exams aim at assessing various dimensions of learning: knowledge of concepts and theories and the ability to apply this knowledge to real-world phenomena, through analyzing the situation, distinguishing problems, and suggesting solutions. The written exams can be of two types, ie. open-ended questions, which can also be in the form of problems or multiple-choice questions. Examinations are individual and must be completed without any outside assistance. Students who attempt to cheat during exams will receive a failing grade from that exam. The case could also be carried to the Dean's Office for additional disciplinary action. |
| Assignments: | Not applicable. |
| Missed exams: | Any student missing an exam needs to bring an official medical report to be able to take a make-up exam. The medical report must be from a state hospital. |
| Projects: | Not applicable. |
| Attendance: | Attendance requirements are announced at the beginning of the term. Students are usually expected to attend at least 70% of the classes during each term. |
| Objections: | If the student observes a material error in his/her grade, he/she has the right to place an objection to the Faculty or the Department. The claim is examined and the student is notified about its outcome. |