



T.C. İSTANBUL TİCARET ÜNİVERSİTESİ

FACULTY OF HUMANITIES AND SOCIAL SCIENCES DEPARTMENT OF STATISTICS 2025-2026 ACADEMIC YEAR COURSE CONTENTS

GENERAL ENGLISH 1

Subject pronouns; poss. adj.s days of the week/ numbers 0-100/ classroom language/ A / an / plurals this / that / these / those adjectives colors/ Review of Adjectives/ Imperatives Let's Modifiers Quite / very /really/ Word order in questions/ Verb phrases Question words/ Simple Pres. (+ / - / ?)/ Word order in questions/ Verb phrases/ Question word/ Telling Time / Prepositions of Time/ Adverbs /Write about your favorite day/ Verb Phrases/ Can cannot/ Present Continuous Tense/ The weather & Seasons/ Present Simple & Present Continuous Tense

GENERAL ENGLISH 2

Word order in questions/ Simple present/ Phrases with 'go', holiday activities, simple Past vs Past Cont./ Time sequence, connectors(so, because, but, although)/ BE GOING TO, plans& predictions Airport vocabulary/ Present cont.(future arrangements), defining relative clauses ,paraphrasing, write an email about travel arrangements/ Make&do, Present Perfect(just, yet, already) Present Perfect vs Simple Past, Shopping vocab./ Indefinite pronouns Adjectives ing./ed. comparative adjectives and adverbs, as----as/ Superlatives(+ ever+ present perfect)/ Describing a place Write a description of the place where you live/ quantifiers/too/ not enough

MATHEMATICS 1

Real Numbers / Complex Numbers / Functions / Limit and Continuity / Sequences / Derivative / Applications of Derivative / Differential / Rolle's and Mean Value Theorems / Trigonometric-Inverse Trigonometric, Exponential, Logarithmic, Hyperbolic and Inverse Hyperbolic Functions / L'Hospital's Rule / Graphs of Functions / Polar Coordinates / Parametric Equations

MATHEMATICS 2

Indefinite Integral / Basic Integrals / Integration by Substitution / Integration by Parts / Integrals of Rational Functions / Trigonometric Substitution / Other Substitution Methods / Definite Integral / Fundamental Theorem of Calculus / Areas of Planar Regions / Volumes of Solids of Revolution / Areas of Surfaces of Revolution / Arc Length of a Curve / Improper Integrals

STATISTICS 1

Introduction to Statistics / Basic Concepts of Statistics / Data Types / Data Collection / Reliability and Validity of Data / Measures of Central Tendency: Arithmetic Mean, Geometric Mean, Quadratic Mean, Median, and Mode / Properties of Measures of Central Tendency / Selection of Measures of Central Tendency / Measures of Dispersion: Variance, Standard Deviation, Range, Coefficient of Variation

STATISTICS 2

Indices: Fixed-Base and Chain-Base Indices / Relationships Between Fixed and Chain-Base Indices / Composite Indices / Special Use of Indices (Deflating Current Prices to Real Prices) / Probability: Event, Sample Space and Probability, Union and Intersection, Conditional Probability / Discrete and Continuous Distributions / Random Variables / Computer Applications



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

PROBABILITY 1

Set Theory / Counting Techniques / Factorial / Permutation / Combination / Multinomial Expansion / Concept of Probability / Addition and Multiplication Rules / Statistical Independence / Ordered and Unordered Probabilities / Bayes' Theorem / Random Variables / Continuous and Discrete One-Dimensional Random Variables / Probability Mass and Probability Density Functions / Distribution Function / Expected Value and Variance / Properties of Expected Value and Variance / Moment Generating Function / Properties and Moments / Standardized Random Variables and Chebyshev's Inequality / Discrete Probability Distributions: Bernoulli, Binomial, Geometric / Negative Binomial / Hypergeometric / Multinomial / Multivariate Hypergeometric / Poisson / Discrete Uniform Distribution

PROBABILITY 2

Approximations in Probability Distributions: Binomial-Poisson, Binomial-Normal, Poisson-Normal, Hypergeometric-Binomial and Relationships Between Distributions: Poisson-Exponential / Continuous Probability Distributions: Normal and Standard Normal Distribution Properties and Applications / Other Continuous Theoretical Probability Distributions: Uniform, Exponential, Gamma, Beta, Weibull, Lognormal, Erlang, Pearson 5, Pearson 6, Logistic, Laplace, Pareto, Cauchy, Rayleigh Distributions, Application Areas, Probability Density and Distribution Functions / Sampling Distributions: Chi-Square Distribution, F-Distribution, t-Distribution

LINEAR PROGRAMMING 1

Linear Decision Making Models / Basic Steps of Model Formulation in Linear Programming / General Form of Linear Programming Models / Conversion to Standard Form / Graphical Solution Method / Simplex Solution Method / Duality and Sensitivity Analysis / Primal-Dual Model Relationships / Economic Interpretation of Duality

LINEAR PROGRAMMING 2

Dual Simplex Method / Sensitivity Analysis in Linear Programming / Big M Method / Two-Phase Simplex Method / Transportation Problems / Northwest Corner Method / Row Minimum Method / Column Minimum Method / Least Cost Method / VAM (Vogel's Approximation Method) / RAM (Russell's Approximation Method) / Assignment Problems / Hungarian Method

TURKISH LANGUAGE 1

Aims and Principles of Turkish Language Course, Introduction of Topics, Course Methodology / Languages in Terms of Structure / The Place of Turkish Among World Languages / Language Types: Spoken Language, Written Language, Dialect, Vernacular, Slang / History of the Turkish Language / Scripts Used by Turks / Writing and Language Revolution / Characteristics of Turkish / Analysis Plan for Thought-Based Writing / Methods for Determining Subject, Theme, and Main Idea / Current Issues of Turkish: Language-Culture, Language-Thought, Language-Communication / Spelling Rules and Punctuation / Expression Rules and Styles / Paragraph Knowledge and Types / Problems of Turkish and Disorders in Language Acquisition - Language Errors, Foreign Words in Turkish / Composition Writing Rules / Expression Fallacies

TURKISH LANGUAGE 2



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

General Characteristics of Literary Genres / Novel, Short Story, Theatre, Criticism in Turkish Literature / Novel: Characteristics, Development in Our Literature, Analysis Plan, and Examples / Short Story: Characteristics, Development, Types, Analysis Plan, and Examples / Short Story: Application, Determining the Subject and Summarizing / Theatre: Characteristics, Development, Examples / Poetry: Phases in Our Literature, Poetic Movements, Examples, Application / Presentations of Selected Examples by Students / Criticism: Its Place in Our Literature, Critics, Examples / Oral Expression: Symposium, Debate, Panel, Symposium / Rules and Examples of Oral Expression / Official Correspondence and Rules for Writing Official Documents / Types of Official Correspondence: Petition, CV, Business Letters / Applications Regarding Spelling and Punctuation

ATATÜRK'S PRINCIPLES AND HISTORY OF REVOLUTION 1

The Aim of Studying "Atatürk's Principles and History of Revolution," the Concept of Revolution and Basic Concepts / Reasons Leading to the Collapse of the Ottoman Empire and the Turkish Revolution, Ottoman Empire / World War I and the Armistice of Mudros / The State of the Country in the Face of Occupations and Mustafa Kemal Pasha's Reaction / Mustafa Kemal Pasha's Landing in Samsun / The First Step for the National Struggle, Organizing Through Congresses / Kuvayı Milliye (National Forces) and Misak-ı Milli (National Pact) / Opening of the Grand National Assembly of Turkey (GNAT) / GNAT Taking Over the Management of the War of Independence / National Struggle Until the Battle of Sakarya / Battle of Sakarya and the Great Offensive / From Mudanya to Lausanne

ATATÜRK'S PRINCIPLES AND HISTORY OF REVOLUTION 2

Revolutions in the Political Field / Attempts to Transition to Multi-Party Life I & II / Developments in the Field of Law, Education, Culture, and Health / Economic Policy in the Early Years of the Republic / Turkish Foreign Policy During the Atatürk Era (1923–1938) / Atatürkist Thought System and Principles / Turkey During and After World War II / Internal Political Developments in Turkey (1950–1980) / Internal Political Developments in Turkey (1980–2012) / Foreign Policy of Turkey (1960–2012)

COMPUTER PROGRAMMING IN DATA ANALYSIS 1

Introduction to Python Programming Language / Basic Operations and Data Types / Data Structures in Python / Functions in Python / Modules and Object-Oriented Programming / Use of Packages in Python / Use of Modules in Python

COMPUTER PROGRAMMING IN DATA ANALYSIS 2

Numpy Package in Python / Pandas Package / Data Reading / Data Transformation / Data Visualization / Working with Big Data and Databases / Data Scraping in Python

ECONOMICS

Foundations of Economic Science and Basic Concepts / Differences and Relationships Between Microeconomics and Macroeconomics / Obtaining and Visualizing Economic Data / Demand, Supply, and Market Equilibrium / Elasticity / Theory of Consumer Behavior / Theory of Production / Market Structures / National Income / Inflation / Employment and Unemployment / Economic Growth and Development / Sustainable Development

SAMPLING 1



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

What is Sampling? / Necessity and Importance of Sampling / Advantages and Disadvantages of Sampling / Stages of Sampling / Sampling Types / Simple Random Sampling / Point Estimation / Properties of Point Estimators / Interval Estimation / Estimation of Population Mean - Point Estimation / Estimation of Population Mean - Interval Estimation / Estimation of Population Total / Determination of Sample Size in Estimating Population Mean / Estimation of Population Proportion - Point Estimation / Estimation of Population Proportion - Interval Estimation / Determination of Sample Size in Estimating Population Proportion

SAMPLING 2

Stratified Sampling / Cluster Sampling / Quota Sampling / Systematic Sampling / Two-Stage Sampling / Linear Regression Estimation in Sampling / Applications

MATHEMATICAL STATISTICS

Probability Distribution of Two Random Variables / Joint Probability Distribution / Cumulative Joint Probability Distribution / Expected Value and Its Properties / Expected Value for Two Random Variables / Variance and Its Properties / Variance for Two Random Variables / Limit Theorems / Central Limit Theorem / Chebyshev's Inequality

OPERATIONS RESEARCH

Operations Research Models / Transportation and Assignment Problems / Hungarian Approach / MODI Test / Vogel's Approximation / Network Models: Concepts, Shortest Path Problems / Minimum Spanning Tree Problems / Maximum Flow Problems / Minimum Cost Flow Problems / Solving Network Models with the Simplex Method / Project Management: CPM, PERT / Integer Programming / Dynamic Programming: Deterministic and Stochastic / Decision Theory / Game Theory: Two-Person Games, Zero-Sum Games, Mixed Strategy Games, Graphical and DP Solutions / Goal Programming / Queueing Theory / Inventory Control Models

QUANTITATIVE DECISION MAKING TECHNIQUES

Definition of Decision Making / Elements of Decision Making / Decision Making Under Certainty / Decision Making Under Uncertainty / Decision Making Under Risk / Bayes Decision Method / Pre-Information and Post-Information Bayes Decision Method / Statistical Decision Making / Hypothesis Testing / Hypothesis Tests for Means / Hypothesis Tests for Proportions / Analysis of Variance (ANOVA)

OPTIMIZATION

Optimization, Basic Concepts, Classification of Optimization Problems and Methods / Design Space, Constraint Surfaces, Objective Function / Statement of Optimization Problems / Single-Variable Optimization Techniques / Golden Section Method / Conjugate Gradient Method / Genetic Algorithm / Particle Swarm Optimization / Artificial Bee Colony

DESIGN OF EXPERIMENTS 1

Basic Concepts / Homogeneity of Variance Test / One-Way ANOVA / Multiple Comparisons / Randomized Block Design / Randomized Complete Block Design / Latin Square Design / Graeco-Latin Square Design / Factorial Designs / 2^k and 3^k Factorial Designs

APPLIED STATISTICS 1



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Estimation Methods / Investigation of Relationships Between Variables / Basic Concepts and Definitions of Parametric and Non-Parametric Hypothesis Tests and Multivariate Statistical Analysis Methods / Data Types and Collection of Statistical Data / Determining Hypotheses and Interpreting Results

REGRESSION ANALYSIS 1

Variables, Types of Variables, Relationships Between Variables, Deterministic and Stochastic Relationships / Direction, Degree, and Functional Form of the Relationship / Population and Sample Regression / Basic Assumptions of Regression, Finding the Population Regression Line / Sample Regression Equation, OLS Method, Estimation of Parameters, Calculation of Theoretical Values / Goodness of Fit Analysis / Standard Errors of Estimators and Parameter Tests / Interval Estimations, Coefficient of Determination and Use of the Model for Prediction / Applied Examples and Lab Work / Regression Solutions According to Different Function Types / Correlation Analysis and Different Correlation Coefficients / Multiple Regression and Its Assumptions / Examination of Assumptions

REGRESSION ANALYSIS 2

Full and Semi-Logarithmic Models / PE Test for Selection Between Linear and Full Logarithmic Models / Multiple Regression Models and Assumptions / Multicollinearity Problem / ANOVA Table and F-tests in Multiple Regression / Comparison of t and F Tests for Multicollinearity / Matrix Approach to Multiple Regression / Calculation of Parameter Variances via Matrices / Meaning of Multiple Coefficient of Determination, Adjusted R-squared / Examples of Alternative F-test Applications: Testing Parameters and Restricted Cases / Partial Coefficients of Determination / Criteria for Selection of Independent Variables: Nested and Non-nested Models / Inclusion of Qualitative Independent Variables: Dummy Variables / Using Dummy Variables to Change Intercept or Slope / Application of Dummy Variables in Time Series / Models with Qualitative Dependent Variables: Linear Probability Models and Their Drawbacks / Logit, Probit Functions, and Residual Analysis

EXPLORATORY DATA ANALYSIS

Statistics Used in Data Analysis / Basic Graphics in Data Analysis / Plotting Multidimensional Data / Exploratory Data Analysis in Big Data Sets / Subgroups in Data Analysis / Missing Values / Transformations / Smoothing / Deciding on Distributions / Reliability / Validity / Computer Applications with SPSS, SAS, and R

NON-PARAMETRIC STATISTICAL METHODS

Statistical Concepts / Single Sample Methods (Location, Dispersion, and Goodness of Fit Tests) / Two Independent Sample Methods / Two Dependent Sample Methods / k-Independent Sample Methods / k-Dependent Sample Methods / Association Tests / Non-Parametric Simple Linear Regression Analysis

TIME SERIES ANALYSIS

Time Series Data / Components of Time Series / Trend Determination - Moving Averages Method / Least Squares Method / Linear and Non-Linear Trend Models / Seasonal Determination - Seasonal Index / Seasonal Dummies / Determination of Irregular Movements / Forecast Success Criteria / Smoothing Methods / Autoregressive Models / Correlogram



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

PROFESSIONAL ENGLISH

History of Statistics; Topic Presentations / Question-Answer Speaking Sessions / Reading Comprehension: "What is Business Statistics?" / Generating Questions from "Sampling Methods" Articles / Answering Questions on "Data Mining" / Word Forms Study in "Frequency Tables" / Vocabulary Work on "Frequency Distribution" and "Displaying Data" / Vocabulary Study on "Mean Mode" / Finding Turkish Equivalents for English Terminology in "Reliability and Validity" / Word Exercises on "Sampling Methods" / Developing Reading Skills via "Sampling"

MULTIVARIATE ANALYSIS 1

Mathematical Preliminaries / Distributions and Multivariate Normal Distribution / Multivariate Hypothesis Tests / Hotelling's T^2 / MANOVA / Factor Analysis / Principal Component Analysis (PCA)

MULTIVARIATE ANALYSIS 2

Principal Component Analysis / Factor Analysis / Canonical Correlation Analysis / Discriminant Analysis / Logistic Regression Analysis / Cluster Analysis / Multidimensional Scaling (MDS) / Multivariate Regression Analysis / Correspondence Analysis / Homogeneity Analysis / Non-Linear PCA / Non-Linear Canonical Correlation Analysis

ECONOMETRICS 1

Basic Concepts / Review of Estimation Theory / Linear and Non-Linear Econometric Models and Elasticity / Dummy Variables / Logit and Probit Models / Structural Change / Distributed Lag Models / Autoregressive Models / Simultaneous Equation Models

ECONOMETRICS 2

Characteristics of Economic Time Series Data, Data Generation Process, Stationary and Non-Stationary Processes, Trend, Seasonality / Univariate Time Series Models: AR, MA, ARMA, ARIMA / Unit Root, Process Identification, DF/ADF Unit Root Tests / Co-integration and Error Correction Models (ECM), Engle-Granger Approach, Johansen Co-integration Test / Multivariate Time Series, Vector Autoregressive Models (VAR), Granger Causality / ARCH, GARCH Models and Variants / Applications with Real Economic and Financial Data

CAREER PLANNING

Professions related to the undergraduate field and professional ethics / Weekly seminars by experts and experienced speakers / Introduction of the profession, its content, working conditions, and personal experiences

MACHINE LEARNING

Basic Concepts and Approaches of Machine Learning / Supervised Machine Learning Methods / Learning with Decision Trees / Bayes-Based Approaches / Evolutionary Approach and Genetic Programming / Artificial Neural Networks (ANN) / Learning with Support Vector Machines (SVM) / Reinforcement Learning / Unsupervised Learning Methods and Clustering

GRADUATION PROJECT

Preliminary preparation for project topic selection / Determination of the project topic / Detailed research on the selected topic / Examination of theoretical approaches, concepts, national and



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

international examples supporting the project / Determination of the methodology to reach goals / Writing the project report

LINEAR ALGEBRA

Vector Algebra / Vector Spaces / Subspaces / Basis and Dimension / Matrices / Determinants / Linear Equation Systems / Linear Transformations / Eigenvalues and Eigenvectors / Canonical Forms / Linear Forms / Bilinear Forms / Inner Product Spaces

DATABASE MANAGEMENT

Database Management Software / Relational Model: Data Structure, Normalization, Data Consistency, Relational Algebra / Data Processing with SQL / Transaction Management: Rollback, Data Compatibility / Relational Database Theory: Dependency, Normal Forms / SQL Data Definitions and Other Features / Procedural Extensions in SQL / Databases and the Web

DATA VISUALIZATION

History of Visualization: Why do we visualize data? / Data Types, Attribute Types, Dataset Types (tables, networks, fields, multi-dimensional tables) / Marks and Channels, Using the Right Marker (Points, Lines, Areas) / Channel Use and Effectiveness Ranking / Data Summarization, Grouping, and Visualization; Organizing Tables, Word Clouds / Scatter Plots and Properties, Bar Charts / Streamgraphs, Point and Line Charts, Stacked Bar Charts / Matrix Charts (Heat Maps, Scatter Plot Matrix) / Color Selection, Color Theory, Colormaps / Visualization Software and Tools / Data Visualization with Spreadsheets / Tableau / Google Data Studio / Advanced Visualization Tools

STATISTICAL LITERACY

Scientific Research Process / Basic Concepts in Scientific Research / Selection of Research Topic / Formation of Research Hypotheses / Data Types in Scientific Research / Information Collection Methods: Questionnaire, Observation, Interview / Design of Questionnaire Form / Question Types / Types of Measurement and Scales / Reliability and Validity Analysis / Population, Sampling Methods, and Determination of Sample Size / Application of Descriptive Statistical Techniques in Data Analysis / Parametric and Non-Parametric Tests: Comparison of Two or More Means / Regression and Correlation Analysis / Application of Multivariate Statistical Techniques

PUBLIC OPINION RESEARCH

Qualitative and Quantitative Research Methods / Research Types / Stages of the Research Process / Scales / Population and Sample / Sampling / Sampling Procedure / Sampling Types / Data and Data Sources / Questionnaire / Questionnaire Types / Question Types / Reliability-Validity / Interview / Observation

SOCIAL AND ECONOMIC STATISTICS

What are Social and Economic Statistics? / Social Indicators of the Economy / Data Sources / Real Sector Statistics / Finance Sector Statistics / Sectoral Analysis / Foreign Trade Statistics / Price Statistics / Indices



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

BIG DATA ANALYSIS

Introduction to Big Data Analysis / Big Data Analysis Platforms / Big Data Storage and Analysis / Clustering and Classification / Big Data Analytics Algorithms / Spark and Data Analysis / Connected Big Data / Graphical Models / Big Data Visualization / Cognitive Mobile Analysis / Applications

DYNAMIC PROGRAMMING

Definition of Dynamic Programming / Mathematical Representation of Dynamic Programming / Development of Optimal Decision Policy / Route Determination Problems / Resource Allocation Problems / Knapsack Problems / Inventory Control Problems / Equipment Replacement Problems / Continuous State Dynamic Programming / Probabilistic Dynamic Programming / Introduction to Computer Software Packages / Computer Package Applications / Multidimensional Structure Theorems / Functional Equations

HISTORY OF STATISTICS

What is Science? Explanation of Science and Developments in Science / Scientific Developments between 650 BC and 1000 AD / Renaissance: The Age of Scientific Development / Scientific Developments in the Islamic World / Developments in Europe from Leonardo Da Vinci to Torricelli / The Emergence of the Concept of Statistics / 17th Century England: John Graunt, Early Statistical Definitions, and the Birth of Vital Statistics under "Political Arithmetic" / The Birth of the Concept of Probability in the 17th Century / Galileo, Pascal, Fermat, Bernoulli Brothers, de Moivre, Laplace, Gauss / 19th Century: Sir Francis Galton's Early Work on Regression and Correlation, and Further Developments by Pearson and Spearman / 20th Century Developments and Contributions of Ronald A. Fisher / The Start of Statistical Studies in Turkey / Collection of the First Statistical Data / First Statistical Compilations in the History of the Republic / Camille Jacquart and the Establishment of the Institute of Statistics

SAMPLING APPLICATIONS

Stratified Sampling Applications / Cluster Sampling Applications / Quota Sampling Applications / Systematic Sampling Applications / Two-Stage Sampling Applications

ARTIFICIAL NEURAL NETWORKS

Introduction to Artificial Neural Networks (ANN) / Structure and Basic Elements of ANNs / ANN Models / Single-Layer Neural Networks / Multi-Layer Neural Networks / Deep Learning / Application Areas of ANNs / ANN Applications in R / ANN Applications in Python

STRUCTURAL EQUATION MODELING (SEM)

Concepts Used in SEM / Model Identification Procedures / Path Analysis and Applications / Measurement Models and Factor Analysis / SEM in Single and Multiple Groups / Assumptions of SEM and Estimation in These Models / Hypothesis Testing / Investigation of Model Goodness-of-Fit

STATISTICAL METHODS



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Identification and Comparison of Data / Graphs Related to Data (Box Plots, Stem-and-Leaf Plots, Q-Q Plots, etc.) / Categorical Data / Creation of Contingency Tables / Examination of Goodness-of-Fit for Categorical Data / Calculation of Category Profiles and Marginal Proportions / Calculation of Distances Between Points / Concept of Variance-Inertia / Dimensioning / Log-Linear Models in Two-Way Contingency Tables / Log-Linear Models in Three-Way Contingency Tables / Log-Linear Models and Relationship Graphs / Investigating the Suitability of Selected Log-Linear Models / Relationship Between Two-Category Binomial Logit and Log-Linear Models

GAME THEORY AND MARKET APPLICATIONS

Solution Concepts: Dominant Strategy Equilibrium, Successive Elimination of Dominated Strategies, Nash Equilibrium / Focal Point Equilibrium and Evolutionary Equilibrium / Basic Dynamic Game Solutions / Nash Equilibrium and Backward Induction / Subgames and Subgame Perfect Equilibrium / Uncertainty / Static Games with Exogenous Uncertainty / Dynamic Games with Exogenous Uncertainty / Static Games with Endogenous Uncertainty

SELECTED TOPICS IN STATISTICS

Multidimensional Research Methods / Statistical Research Related to Earthquakes / Economic Forecasting / Productivity Research in Enterprises / Demand Forecasting / Six Sigma / System Analysis / Performance Analysis / Statistical Models

BIOSTATISTICS

Introduction to Biostatistical Science / Basic Concepts Related to Statistics / Data, Data Collection, Classification of Data / Descriptive Measures of Frequency Distribution: Calculation of Means and Dispersion Measures / Table and Graph Construction / Sampling Methods / Basic Concepts of Hypothesis Testing / Introduction to Software Packages and Data Entry / Parametric Significance Tests / Non-Parametric Tests / Correlation and Regression Analysis / Applications and Case Studies / General Evaluation

PANEL DATA ANALYSIS

Basic Concepts of Panel Data / Advantages and Constraints of Panel Data / Linear Panel Data Models / Pooled Data POLS Estimation Method / Fixed Effects Models - Within Estimator / Fixed Effects Models - Between Estimator / Random Effects Models / Generalized Least Squares (GLS) in Random Effects Models / Maximum Likelihood Estimation in Random Effects Models / Choosing Between Methods / Computer Software Applications / Panel Data Models - Independence of Cross-Sections / Deviations from Basic Assumptions: Autocorrelation and Heteroscedasticity

STATISTICAL SIMULATION

Structure and History of Simulation / Simulation Models / Advantages and Disadvantages of Simulation / Monte Carlo Simulation / Goodness-of-Fit Tests / Random Number Generators / Randomness Tests / Random Variable Generation / Variance Reduction Techniques / Output Analysis

MULTI-CRITERIA DECISION MAKING (MCDM)



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Types of Decision Making / Multi-Criteria Decision Making / ELECTRE Method / Stages and Characteristics of the ELECTRE Method / TOPSIS Method / Stages and Characteristics of the TOPSIS Method / PROMETHEE Method / Stages and Characteristics of the PROMETHEE Method / VIKOR Method / Stages and Characteristics of the VIKOR Method / Data Envelopment Analysis (DEA) / Stages and Characteristics of DEA / Computer Applications

DATA MINING

Databases / Data Mining / Data Mining Process / Application Areas of Data Mining / Techniques Used in Data Mining / Association Rules / Decision Trees / Classification Analysis / Clustering Analysis / Concept of Big Data / Web Mining / Text and Multimedia Mining / Data Mining Software / Case Studies

ACADEMIC TURKISH FOR INTERNATIONAL STUDENTS

Aims and Principles of Turkish Language Course / Language Types / History of the Turkish Language / Characteristics of Turkish / Analysis Plan for Thought-Based Writing / Spelling and Punctuation / Oral and Written Expression / Paragraph Structure and Summarizing / Proper Use of Turkish in Oral Expression / Language Errors and Foreign Words / Official Correspondence: Petitions, CVs, Business Letters

CITY, CULTURE, AND ISTANBUL

City, Culture, and Istanbul: Definitions and Concepts / Istanbul and Literature / Istanbul and its Architecture / Aesthetic of the City / History of Istanbul from Past to Present / Spiritual Life in Istanbul / Traditional Turkish Arts and Istanbul / Cultural Spaces: Libraries / Gastronomy Map of Istanbul / Flora and Fauna of Istanbul / Social Life / Istanbul in Terms of Tourism / Global City Concept and Istanbul

SIGN LANGUAGE

Finger Alphabet (Double-handed) and Vocabulary Types: Names, Antonyms, Verbs, Adjectives / Family and Environment / Body and Health / House and Household Items / Food and Drinks / Clothing and Jewelry / Emotions, Professional Terms, and Directions

CIVILIZATION AND SOCIETY

Religions and Islam in Today's World Geography / What is Civilization? / Prehistoric Ages / Mesopotamia and Historical Ages / Ancient Central Asia and Scythians / Turkish History and Uyghurs / Anatolian Civilizations / Phoenicians and Hebrews / Egyptian Civilization / Aegean and Greek Civilization / Etruscans and the Roman Empire / Iran, India, and China Civilizations / The Tradition of Living Together in Turkey / Libraries from History to the Present

TRADE MANAGEMENT



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Definition of Trade / Development in the World and Turkey / National and International Institutions Related to Trade / Multilateral Trade System and Trade Management / Distribution Channels / Contract Management in Trade / Direct Sales, Dealer, and Agency Contracts / Risks, Cost Elements, and Pricing in the Transition from Seller to Buyer / Transportation Risk Management and Insurance / Political Risk, Credit Risk, and Currency Risk Management / Turkish Commercial Legislation

HISTORY AND PHILOSOPHY OF SCIENCE

Introduction to Culture, Technology, Science, and Philosophy / Science, Religion, and Society in Mesopotamia / Science and Philosophy in Ancient Greece / Medieval Europe and Scholastic Philosophy / Science and Philosophy in Islamic Culture: Ibn Khaldun / Science and Philosophy in Renaissance Europe / Society and Philosophy of Science in the Age of Enlightenment and Positivism / Karl R. Popper: The Logic of Scientific Discovery / Imre Lakatos: Methodology of Scientific Research Programs / Paul Feyerabend: Against Method / Thomas S. Kuhn: The Structure of Scientific Revolutions / Willard V.O. Quine: Two Dogmas of Empiricism

ADDICTION AND COMBATING ADDICTION

Health Policy and Factors Affecting Policy / Stages of Policy Development / International Organizations in Setting the Policy Agenda / Global Health Policies / Concept of Addiction / Types of Addiction / Causes of Addiction / Ways of Coping with Addiction

ACADEMIC SUCCESS AND LIFE SKILLS

General Framework: Academic Success and Life Skills / Transition from High School to University / Istanbul Commerce University: The University of the Business World / Internal Communication / Critical and Analytical Thinking / Coping with Stress / Time Management / Effective Presentation Techniques / Group Work

POLITICS IN TURKEY

Turkish Concept of State / Politics in the Ottoman Empire / Edict of Tanzimat / New Ottomans / Young Turks - Committee of Union and Progress / War of National Independence / Women in Turkish Politics / Kemalism - Single Party Rule / Youth in Turkish Politics / Transition to Democracy - Second Republic (1960-1980) / Minorities in Turkish Politics / Third Republic (1980-2002) / Post-2002 Turkish Politics - Turkey in Global Politics

STATE, SOCIETY, AND ECONOMY IN TURKEY



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Basic Concepts / Relationship and Origins of State, Society, and Economy / Administration and Economic Order in the Ottoman Empire / Age of Reform in the 18th and 19th Century / Second Constitutional Era / Union and Progress Administration / World War I and Struggle for Independence / Economy and Politics in the Early Republic / Single Party Era: Economy and Statism / Transition to Multi-Party Life and Democratic Party Era / Between Two Coups: 1970-1980 / Neoliberalism and the Özal Years / Globalization and the AK Party Years

CULTURE AND POLITICS IN EURASIA

The Concept of Eurasia and the Formation of the "Eurasia Geoconcept" / Perspectives and Semantic Foundations / Major Powers in Eurasia from Past to Present / Central Asia or Turkestan: East, West, and South Turkestan / Cultural Lines in Eurasia: History and Civilization / Discovery of New Turkic Republics in the Post-Cold War Era / New National Identities / Regional Analysis: Russia, China, and Turkey / Security Approaches and Institutional Mechanisms in Eurasia / Border Conflicts, Ethnic-Regional Disputes, and Land Conflicts / Regional Economic and Cultural Integration in Eurasia

BASIC CONCEPTS AND STRUCTURES IN ECONOMICS

Definition of Economic Science / Laws of Supply and Demand / Market Equilibrium / Consumer Behavior / Production and Cost Theories / Firm and Market Structures / Types of Competition / Market Failures and State Intervention / Money and Banking System / Macroeconomic Indicators / National Income Calculation Methods / Inflation and Unemployment / Economic Growth and Development / International Trade and Finance / Economic Policies and Applications

FINANCIAL LITERACY

Introduction to Financial Literacy / Current Situation of Financial Literacy in Turkey / Basic Concepts in Finance and Financial Environment / Financial Markets and Institutions / Financial Instruments (Deposits, Stocks, Bonds, etc.) / Interpretation of Basic Economic Indicators / Time Value of Money and Interest Calculations / Fundamental Analysis / Stock Valuation / Financial Statement Analysis

MIGRATION AND MIGRATION POLICIES IN TURKEY

Concept of Migration, Types, and Causes / Concepts of Migration Law / International and Turkish Migration Law / Migration Theories / History of Migration in Turkey / Post-2011 Migration Movements to Turkey / International Migration and Securitization in the 21st Century / International Migration and Diaspora Relations / Social Integration Process / Political Economy of International Migration / Feminization of Migration



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

BASIC CONCEPTS AND APPROACHES IN PSYCHOLOGY

Definition of Psychology and Related Sciences / Modern History of Psychology / Sensation and Perception / Learning / Motivation and Senses / Attitudes and Stereotypes / Stress and Conflict / Cognitive and Mental Abilities / Memory / Personality / Application Areas of Psychology / Measurement and Evaluation in Psychology / Behavioral Analysis

SOCIAL RESPONSIBILITY PROJECTS

Definition of Social Responsibility / Information on Social Responsibility Projects / Examples of Projects / Determination of Project Topics and Preparation / Implementation of Projects / Evaluation of Project Outputs

LEADERSHIP AND MANAGEMENT

Concepts of Leadership and Management / Classical and Modern Management Theories / Traditional and Contemporary Leadership Approaches / Leadership and Organizational Hierarchy / Leadership and Social Change / Ethics and Leadership / Cultural Differences and Leadership / Women and Leadership / Leadership in the Digital Age / Examples of Leadership in the World and Turkey

SOCIAL CHANGE AND MODERNIZATION IN TURKEY

Concepts of Social Change and Modernization / Theories of Modernization and Criticisms / Modernization Process from Ottoman to Republic / Social Impacts of Tanzimat and Islahat Edicts / Intellectual and Institutional Transformation in the Second Constitutional Era / Reconstructing Social Structure in the Early Republic / Reforms of the Single Party Era (1923–1950) / Social Reflections of Transition to Multi-Party Life / Industrialization, Migration, and Urbanization Processes / Education, Language, and Culture Policies / Change in the Social Status of Women / Transformation in Family Structure and Gender Roles / Religion and Secularism / Media and Cultural Modernization / Post-1980 Neoliberal Policies / Globalization, Identity, and Cultural Diversity

BASIC CONCEPTS IN SOCIAL SCIENCES

Leadership and Conflict Management / Critical Thinking / Society, Sociology, Stratification, and Inequality / Economics and Basic Concepts / Special Education Groups – Learning Difficulties / Media and Political Economy of Media / Globalization / Education as a Soft Power Element / Political Science and International Relations / Artificial Intelligence Applications / Selected Topics – Film Analysis

BASIC CONCEPTS AND APPROACHES IN EDUCATION

Leadership and Conflict Management / Critical Thinking / Special Education: Gifted Students / Special Education: Learning Difficulties and Barriers / Educational Psychology and School Culture / Economics of Education / Education as Soft Power / Externality in Education / Machine Learning and AI / Selected Topics

TRADE APPLICATIONS



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Documents Used in Trade and Sales Contracts / Delivery Terms (Incoterms) and Pricing / Payment Methods and Risks: Cash in Advance, Open Account, Documents Against Payment, Acceptance Credit, Letter of Credit / Considerations in Choosing Payment Methods / Financing Products for Importers and Exporters

NEW GENERATION ENTREPRENEURSHIP

Basic Concepts in New Generation Entrepreneurship / New Generation Business Models / Project Development Processes / Startup Interviews and Presentations / Financing Models for New Generation Entrepreneurship / Experience Sharing on Receiving Investment / Project Presentation and Negotiation

LITERATURE AND SOCIETY

Definition and Function of Literature / Social Functions of Literature / Literary Genres and Social Reflections / Realism and Society / Literature and Ideology / Literary Movements and Social Change / Politics of Literature / Gender and Literature / Identity and Culture in Literature / Relationship between Society and the Individual / Historical Development of Literature and its Impact on Society / Popular Culture and Literature / Literary Criticism and Social Analysis

CURRENT ISSUES IN WORLD POLITICS

Rising Powers and the Return of Geopolitics / Non-Traditional Security and World Politics / Nuclear Deterrence and Disarmament / Debate: Conflict over Nuclear Programs / International Organizations and Criticisms / Global Terrorism / Globalization and Regionalization / Debate: Free Trade and Poverty / Climate Change / Migration and Asylum Movements / A New World Order?

ENTREPRENEURSHIP AND SOCIAL ENTREPRENEURSHIP

What is Entrepreneurship? / Concept of Social Innovation / What is Social Entrepreneurship? / Identification of Problems and Solution Generation Processes in Social Enterprises / Examples of Social Enterprises from Turkey and the World / Discussion of Students' Social Entrepreneurship Ideas

NEW MEDIA AND COMMUNICATION

Digitalization of Communication Environments / New Media Technologies and Social/Cultural Impacts / Differences between New Media and Traditional Media / Media Literacy / Participatory Culture / Digital Identity and Online Communities / Social Media Ecosystem / Network Society / Interactive Communication / Digital Platform Economies / Public Sphere Online / Case Analyses on Politics, Culture, and Everyday Life

BASIC CONCEPTS AND APPROACHES IN SOCIOLOGY

Doing Sociology: What is the Sociological Perspective? / Socialization / Culture / Social Stratification, Class, and Status / Alienation and Anomie / Social Interaction / Religion and Society / Crime and Deviance / Families, Sexuality, and Society / Health and Medicine / Aging and the Life Course / Social Change: Traditional, Modern, and Postmodern Societies

SOCIAL STRUCTURE AND INSTITUTIONS IN TURKEY



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

State and Society Concept in Classical and Islamic Turkish Political Culture / State and Society in Modern Western Thinkers / State-Society Relations in the Modern Ottoman Empire / Turkish Enlightenment and Transition to Republic / Religion and Politics in Social Relations / Bureaucratic Tutelage / Civil Society in Turkey / National Economy and National Bourgeoisie / Environmentalist Movements / Family and Marriage Institutions / Role of the Education Institution / Political Institutions and State Structure / Migration and Urbanization / Social Stratification and Class Structure / Media and Society

ARCHITECTURE AND ART HISTORY

First Turks in Anatolia and Seljuk Era Architecture / Mosques, Madrasas, Caravanserais, Tombs, Baths, and Bridges / Architecture of the Beyliks Period / Early and Classical Period Ottoman Architecture / The Era of Mimar Sinan / Great Complexes (Külliyes) / Late Period Ottoman Architecture / Ottoman Mansions (Yalıs) / Neo-Classical Period Architecture

EDUCATION AND SOCIETY

Social Functions of Education / Philosophical, Psychological, and Sociological Foundations of Education / Education and Culture / Education and Social Change / Historical Development of Education in Turkey / Equality of Opportunity in Education / Education and Law / Education and Economics / Current Debates in Education Policy

TEXTILES AND CLOTHING IN ANATOLIA

Introduction to Traditional Textiles / First Findings in Textile Art / Regions Producing Traditional Textiles in Anatolia / Historical Process and Materials Used / Patterning Characteristics / History of Traditional Anatolian Hand Printing and Dyeing

ENERGY, WATER, ENVIRONMENT, AND SOCIETY

Concept of Energy and Basic Energy Units / Energy Types and Transformations / Global Energy Resources / Non-Renewable and Renewable Energy Resources / Importance of Energy in Development / Role of Energy in Sustainable Development / Global Impacts of Energy Resources / Global Warming / Sustainable Environment and Life

BASIC CONCEPTS IN ARTIFICIAL INTELLIGENCE APPLICATIONS

Foundations and Advantages of Digital Technologies / Transition of Countries to the Digital World Order / What is AI? History of AI / Impacts of AI on the Digital World / Application Areas and Examples of AI / Commonly Used AI Tools Today / Machine Learning Concepts / Impacts of AI

PARTICIPATION BANKING AND ISLAMIC FINANCE



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Introduction to Participation Finance Institutions and Instruments / Distinguishing Features of Participation Finance vs. Conventional Finance / Regulations and Standard-Setting Bodies / Participation Banks / Participation Insurance (Takaful) / Participation Finance in Money and Capital Markets / Sukuk / Place of Participation Finance in the Financial World / Features of Financial Statements / Trends: Sustainability & Environmental Sensitivity

VOLUNTEERING STUDIES AND SOCIAL RESPONSIBILITY PROJECTS

Responsibility, Social Responsibility, Civil Society, and Volunteering: Conceptual Analysis / How to Create a Project Idea and Write a Project? / Project and Poster Preparation / Implementation of Projects

HUMAN RIGHTS LAW

Introduction to Human Rights Theory and Basic Concepts / Historical Development of the Concept of Human Rights / Human Dignity and Human Rights / Classification of Human Rights / International and Regional Protection of Human Rights / National Protection of Human Rights / Individual Application to the European Court of Human Rights / Prohibition of Discrimination / Case Review

OTTOMAN TURKISH

The Place of Ottoman Turkish in the Turkish Language / Arabic Alphabet, Vowels, and Consonants / Suffixes and Letter Connections (Beginning, Middle, End) / Signs, Numbers, and Writing Practice / Writing Vowels in Turkish / Types of Scripts / Transcription Alphabet / Spelling of Turkish Words / Structure of Arabic Words: Measures, Nouns, Infinitives / Persian-Origin Words / Manuscripts

ADDITIONAL FOREIGN LANGUAGES

(German, French, Spanish, Russian, Japanese, Chinese, Italian, Persian, Arabic, Bosnian/Croatian/Serbian)

Alphabet and Pronunciation / Greetings / Personal Pronouns / Places and Locations / Professions / Languages / Food and Drinks / Currencies and Money Exchange / Present Tense / Questions (Who, What, Why, How many, etc.) / Quantities / Demonstrative Adjectives / Shopping / Verb "To Go" / Family Members / Likes and Dislikes

DEMOGRAPHY

Definition of Demography / Relationship between Demography and Sociology / Sociological and Demographic Perspectives on Population Events / Demographic Structure of the Country / John Graunt and Mortality Statistics / Life Tables / Achille Guillard and Demography / Population Statistics and Projections / Migration Statistics / Gender, Family, and Life

ACTUARIAL SCIENCE



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

Interest Rates / Types of Annuities / Life Tables / Life Insurance / Net Premium Calculations / Reserves

DESIGN OF EXPERIMENTS 2

Introduction to Factorial Designs: Necessity and Interaction / Two-Factor and Three-Factor Designs / ANOVA Tables / Multiple Comparisons (Duncan Test, LSD Test) / Fixed and Random Effects Models / Definition of Variance Components / Expected Mean Squares / Yates Method for Factorial Design / General Review and Applications

DATA ANALYSIS WITH R

Installation of R and RStudio / Data Structures, Functions, Loops, Matrix Operations / Coding Processes with R / Calculation of Descriptive Statistics / Correlation and Covariance / Data Import from Excel, SPSS, and CSV / Batch Data Processing with Smart Loops / Processing Historical Data / Econometric Applications and Statistical Tests / Smart Reporting with RMarkdown / Publishing Reports as Web Pages

STOCHASTIC PROCESSES

Markov Chains / Chapman-Kolmogorov Equations / Classification of Markov Chain States / First Passage Times / Long-Run Properties of Markov Chains / Absorbing States / Continuous-Time Markov Chains / Poisson Processes

APPLIED STATISTICS 2

Estimation Methods / Investigation of Relationships Between Variables / Basic Concepts and Definitions of Parametric and Non-Parametric Hypothesis Tests / Multivariate Statistical Analysis Methods / Data Types and Preparation of Statistical Data / Determining Hypotheses and Interpreting Results

PACKAGE PROGRAMS IN ECONOMETRICS

Introduction to EViews / File Operations and Compatibility / Creating Series and Data Entry / Basic Statistics and Calculations / Graphical Analysis / Estimation of Simple Linear Regression and OLS / Estimation of Non-Linear Regression Models / Dummy Variable Models / Testing for Structural Change / Normality Tests / Introduction to STATA / Basic Statistics and Model Estimation with STATA

STATISTICAL QUALITY MANAGEMENT

Concept of Quality / Total Quality Management (TQM) / Quality Assurance, Control, and Cost Management / Process Definition and Mapping / Diagrams Used in Quality Control Processes / Preparation and Interpretation of Control Charts / Sampling Plans in the Quality Process / Design of Experiments in Quality Control / Application of Quality Control Techniques



**T.C. İSTANBUL TİCARET
ÜNİVERSİTESİ**

**FACULTY OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF STATISTICS
2025-2026 ACADEMIC YEAR COURSE CONTENTS**

OCCUPATIONAL HEALTH AND SAFETY

Basic Concepts / History / Legal Dimensions / Occupational Diseases and Work Accidents /
Protective Measures / Risk Assessment

GLOBALIZATION AND SOCIETY

Globalization and Historical Transformation / Impact of Globalization on Education, Environment,
Military, and Economy.