

İSTANBUL COMMERCE UNIVERSITY  
FACULTY OF BUSINESS ADMINISTRATION  
MAT102-MATHEMATICS II  
2020 SPRING

**Instructor:** Abdullah YENER

**Contact Informations:**

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**Time and Location:** Wednesday 09:00-11:50, D-202

**Office Hours:** Monday 11:00-12:30

**Course Web Page:** <http://ww3.ticaret.edu.tr/ayener/mat102>

**Textbook:**

- **Main Textbook:** Calculus for Business, Economics, Life Sciences, and Social Sciences, Twelfth Edition, by M.A. Barnett, M.R. Ziegler and K.E. Byleen.
- **Reference Book:**
  - Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences, 13th Edition, Ernest F.Hauessler, Richard S. Paul, Richard J.Wood.

**Course Description:**

Mathematics is increasingly important in terms of the expression and communication of ideas in economics. A thorough knowledge of mathematics is indispensable for understanding almost all fields of economics, including both applied and theoretical fields. The objective of this course is to endow first year undergraduate students with the requisite tools needed in advanced courses on microeconomics, macroeconomics and econometrics. As a way of showing the importance of mathematics in economics, all mathematical concepts studied in this part of the course will be illustrated with some applications to economics.

**Content of the Course:** The course will be centered around several main topics covering the notion of derivative and integral with their applications to business and economics.

The list below is a rough guideline for the content of the course. Depending on the class and/or other things, I reserve the right to skip/fast forward certain topics in order to pay more attention to certain others.

1. **Derivatives with Applications:** The Derivative, Basic Differentiation Properties, Marginal Analysis in Business and Economics: marginal cost, revenue, and profit, marginal average cost, revenue, and profit.
2. **Additional Derivative Topics:** Derivatives of Exponential and Logarithmic Functions, Derivatives of Products and Quotients, The Chain Rule, Implicit Differentiation, Related Rates, Elasticity of Demand.
3. **Graphing and Optimization:** First Derivative and Graphs, Second Derivative and Graphs, Absolute Maxima and Minima, Optimization: maximizing revenue and profit.
4. **Integral:** Antiderivatives and Indefinite Integrals, Integration by Substitution, The Definite Integral, The Fundamental Theorem of Calculus.
5. **Applications of Definite Integral:** Area Between Curves, Applications in Business and Economics: Income distribution, Lorenz curve, Gini index.

**Grading:**

Grades will be based upon a midterm and a final examination with weights of approximately %40 and %60, respectively.

**Exam:**

- One midterm and one final exam will be administered during the course. A simple calculators may be required to complete some questions. Students will work individually on the exam. Exam will has a time limit and students will not be free to consult notes and textbooks during the examination.
- If you miss a midterm but present your instructor with an acceptable reason for having done so, you will be given a make-up exam. There will be **no make-up given for the make-up exam!**
- Students may see their exam papers and object to them at the **specified objection time only!**
- Cheating and plagiarism are serious offenses resulting in an F grade and disciplinary action.