



**Course Syllabus
Common Course**

**MATH 112 Business Mathematics II
2019-2020 Spring**

Instructor: Hakan TOR
E-mail: hakan.tor@agu.edu.tr
Office: BA120
Office Hours: TBA

Course Assistant: NA
E-mail: NA
Office:
Office Hours: TBA

Course days and hours:
MATH 112.01: Tuesday 13:10-15:00 (BA015)
Thursday 10:10-12:00 (BA015)

Course Credit: 3 (ECTS 5)

Course Description: This course aims to teach Integration and techniques, multivariable calculus including the method of Lagrange multipliers, method of least squares and double integral by realizing the need for applications of mathematical methods to global challenges in business, economy and social sciences; and understand the features of their application to engineering problems.

Required Textbook/s:

Calculus for Business, Economics, Life Sciences, and Social Sciences - 12th Ed. // R. A. Barnett, M. R. Ziegler, K. E. Byleen. Boston: Pearson, 2011.
[The Chapters 1-5 and #9.1-9.2 of Chapter 9 will be covered in the first semester.]

Additional Resources:

Applied Calculus for Business, Economics, and Finance, W. B. Gordon, W. O. Wang, A. A. Materowski. Pearson, 2007.

Contemporary Business Mathematics for Colleges – 15th Ed. // J. E. Deitz, J. L. Southam. South-Western, a part of Cengage Learning, 2009.

Learning Objectives and Outcomes:

By the end of the semester the students will

- realize the need for applications of mathematical methods to global challenges in business, economy and social sciences; and understand the features of their application to engineering problems;
- practice mathematical symbolic and numerical skill;
- learn how to apply the studied mathematical methods to real-life business problems.

Teaching Methodology:

Learners will be provided with as much opportunities of hands-on practice as possible with the aim of striking a balance between learner-centeredness and sufficient guidance. Various forms of interaction (i.e. pair work and group work) will also be encouraged to cater for learners with different learning styles. Additionally, individuals will be expected to produce both in-class writings and homework assignments in addition to the reading tasks, which will encourage them to reflect and think critically. Technology will also be incorporated into the classroom procedures in order to create a better learning environment.

Grade Distribution: *Final grades are based on the following percentages and the indicated grading scale below*

<u>Evaluation Criteria</u>	<u>Percentage</u>
Midterm I Exam	30%
Midterm II Exam	30%
Final	40%
Quiz (Bonus)	10%
Total: 110%	

*No make-up will be given for the quizzes and the dates & times of the quizzes will be announced during the semester through canvas.

Grading Scale:

A	4,00	90-100	Pass
A-	3,67	87-89	Pass
B+	3,33	83-86	Pass
B	3,00	80-82	Pass
B-	2,67	77-79	Pass
C+	2,33	73-76	Pass
C	2,00	70-72	Pass
C-	1,67	64-69	Conditional pass
D+	1,33	56-63	Conditional pass
D	1,00	50-55	Conditional pass
F	0,00	0-49	Fail

Course Policies:

- For the AGU Make-up policy, please refer to the website <https://goo.gl/HbPM2y> section 27.
- English should be used at all times to communicate with one another during instruction hours.
- Please, respect the allotted times provided for breaks.
- Do not use the computer during the lecture.
- Please, bring the required materials, including textbooks and notebooks.
- Please be prepared, having read the next subjects according to syllabus.

Attendance Policy:

- Be in the class on time (being late for class is an extreme annoyance to the entire class).
- Class attendance is strongly recommended. Participation will help you prepare for exams and homework.

Email Policy:

When contacting us, please indicate the course name, your id number and full name. Any announcements or warnings will be announced via CANVAS. It is the responsibility of every student to follow CANVAS announcements and messages regularly. CANVAS can be accessed through <https://canvas.agu.edu.tr>.

Cheating & Plagiarism:

You are responsible for knowing the University policies on cheating and plagiarism. Not giving credit to a person for their intellectual work and passing it off as your own is stealing.

Specifically:

- 1) Copying or allowing someone to copy your work on an exam, homework, or in class assignment is cheating.
- 2) Cutting and pasting material from the web or any other electronic source is plagiarism.
- 3) Copying and turning in the same assignment as someone else, from this class or from another class, is cheating. Unless explicitly told otherwise, you can discuss and problem- solve on homework together but the final product has to be your own – not just your own handwriting but your own way of explaining and organizing your ideas.
- 4) Making superficial changes (minor additions, deletions, word changes, tense changes, etc) to material obtained from another person, the web, a book, magazine, song, etc. and not citing the work, is plagiarism. The idea is the intellectual property, not the specific format in which it appears (e.g., you wouldn't reword Einstein's theory of relativity and imply that relativity was your own idea, would you?)
- 5) If you find material and it is exactly what you are trying to say, or you want to discuss someone's idea, give the person credit and cite it appropriately. Don't overuse citations and quotes: instructors want to know how you think and reason, not how some one else does.

If you have any questions or concerns about whether your behavior could be interpreted as plagiarism, please ask the assistants or me before you submit the work.

For a detailed description of AGU policies, please refer to the website at <https://goo.gl/FjLhzH>

Course Outline:

Week	Date	Topic	Description, Assignments
1st	Feb. 3-7	Antiderivatives. Indefinite Integrals. Reversing the Chain Rule. Integration by Substitution. Application to Price-Demand Model.	
2nd	Feb. 10-14	Differential Equations. Slope Fields. Growth and Decay. Applications to Continuous Compound Interest, Population Growth, Radioactive Decay, Learning.	
3rd	Feb. 17-21	Approximating Areas by Left and Right Sums. The Definite Integral. The Fundamental Theorem of Calculus. Average Value. Applications to Business and Economy.	
4th	Feb. 24-28	Area between Curves. Income Distribution. Gini Index. Probability Density Functions. Continuous Income Stream. Consumers' and Producers' Surplus.	
5th	March 2 - 6	Integration using Tables. Reduction Formulas. Integration using Computer Mathematical Tools. Applications to Business and Economics.	
6th	March 9 - 13	Applications to Business and Economics. Integration by Parts. Applications to Business and Economics.	
7th	March 16 - 20	Functions of Several Variables. Cobb Douglas Production Function.	Midterm I
8th	March 23 - 27		AGU-LFW

9th	March 30 -Apr.3	Three-Dimensional Coordinate Systems. Partial Derivatives. Productivity. Second Order Partial Derivatives	
10th	Apr. 6-10	Maxima and Minima. Extreme Points. Saddle Points. Local Extrema and Partial Derivatives.	April 6-8 Fall Break
11th	Apr. 13-17	Applications to Business and Economics. Integration of Trigonometrical Functions. Total Revenue. Other Applications to Business and Economics.	
12th	Apr. 20-24	Regression Analysis. Method of Least Squares. Applications to Business and Economics.	Midterm 2
13th	Apr. 27 – May 1	Definition of the Double Integral. Double Integrals over Rectangular Regions. Double Integrals over More General Regions. Reversing the Order of Integration.	
14th	May 4-8	Functions of Two or Three Independent Variables. Constraint. The Method of Lagrange Multipliers. Review: Multivariable Calculus in Business and Economy.	
15th	May 11-15	Catch up and review	
16th	May 16-23		Final Exam