**INSTRUCTOR(S)/TA(s) RECORD**

|  |  |
| --- | --- |
| Name | Hakan TOR |
| Email | hakan.tor@agu.edu.tr |
| TA(s) name | Not avaliable |
| Email | - |
| Office Hours | Please contact me via e-mail for office hours to arrange a meeting. |

**COURSE RECORD**

|  |  |
| --- | --- |
| Code | MATH 111 |
| Name | Business Mathematics |
| Hour per week | 4 |
| Credit | 4 |
| ECTS | 6 |
| Level/Year | Undergraduate / 1st Year |
| Semester | Spring |
| Type | Required |
| Classroom | Zoom and Pearson’s MyLab |
| Prerequisites | no |
| Special Conditions | You should have   1. A stable computer to follow the asynchronous videos on YouTube 2. Access to CANVAS |
| Webpage | For this course, I will be using CANVAS Course Website. You will access the course syllabus, course materials including lecture notes, lecture video links, assignments, articles, etc. from CANVAS. You are responsible to check Canvas regularly. Do not forget to check your e-mail address frequently so that you can follow the announcements on CANVAS. Information about exams and assignments will also be announced at CANVAS. |
| Contents | Functions and Graphs, Limits and the Derivative, Additional Derivative Topics ,and Graphing and Optimization |
| Objectives | The aim of this course is   * To teach Mathematical issues required in business and economics * To discuss how to use these mathematical topics in real-life business and economic problems |
| Learning Outcomes | Students who complete the course successfully, will be gaining skills and competences:  LO1: recognize some mathematical concepts which they need in their academic life;  LO2: identify the need for applications of mathematical methods to global challenges in business, economy and social sciences;  LO3: apply numerical skill on these applications;  LO4: learn how to apply the studied mathematical methods to real-life business and economic problems. |
| Teaching Methodology | In response to the developing situation with covid-19, our course will be offered in an online format. For asynchronous sessions CANVAS and Pearson’s Mylab and for synchronous sessions Zoom will be used. We will be using various tools for active learning to take place.  This is also a student-driven course. It is your responsibility to participate actively in class discussions. You are not graded on whether your comment, remark and suggestions are correct/ useful or incorrect/ unuseful. Evaluation of class participation will be based on your ability to rise and answer important issues, to contribute ideas or insights, to build upon the ideas of others, ask questions to presenters, etc.  By actively participating in the class discussions, you can sharpen your insights, and those of your classmates. |
| Reading List | Text Book and some materials from Pearson’s MyLab |
| Recommended Readings | Will be posted weekly to CANVAS, when needed |
| Recommended Websites | Will be posted weekly to CANVAS, when nedeed |

**COURSE POLICIES**

|  |  |
| --- | --- |
| Late Submissions | All of the assignments are due at the scheduled dates and times. Please mark your calendar for all due dates and follow the announcements about the assignments. |
| Communication | Please check your AGU e-mail for the announcements. All of the messages and announcements will be sent via CANVAS to your AGÜ e-mail addresses. Therefore, it is the responsibility of every student to read his/her official university email address and check the CANVAS regularly.  When contacting the instructor, please use your AGU account and include in the subject line the course code Math111. If this information is not included, your email may not be answered. |
| Attendance Policy | Students are expected to attend all asynchronous / synchronous times. It is your responsibility to come to class **on time**.  Students with medical reports, you need to submit the paperwork to your deanship of faculty in 5 days following the last day of the sick leave. (refer to: Section 26 at https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=36081&MevzuatTur=8&MevzuatTertip=5). Absence due to medical reasons cannot exceed 2 weeks.  **It is the responsibility of each student to keep track of how you are doing on class participation by checking with the instructor several times during the semester.**  For a detailed description of AGU attendance policy, please refer to the website at <https://goo.gl/HbPM2y> section 25. |
| Academic Integrity | Students are obliged to refrain from acts that they know or, under the circumstances, have reason to believe, will impair the integrity of the university or others. Violations of academic integrity include, but are not limited to, cheating, plagiarism, unauthorized multiple submissions or copying and using somebody else’s paper/assignment.  Any of these violations will be investigated by the discipline committee and may cause expulsion of the student from the University. |
| Ethical Rules | * English should be used at all times to communicate with one another during the synchronous hours. * Please, respect the allotted times provided for breaks. * Distractive tools such as cell phones must be turned off and put away during the synchronous hours. * In synchronous hours, computers should not be used to surf on the web or conducting personal business. * Personal business should be done outside of the synchronous hours on your own time, where it does not interfere with the learning environment of your fellow students. * Please be prepared, having read, written, watched and studied the assigned lessons, articles, passages, or videos before the course sessions. * Please be ready to submit assignments on time * And most importantly please prepare to work cooperatively with other students.   *For the AGU Make-up policy, please refer to the website* [*https://goo.gl/HbPM2y*](https://goo.gl/HbPM2y) *section 26.* |
| 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:   * Copying or allowing someone to copy your work on an exam, homework, or in class assignment is cheating. * Cutting and pasting material from the web or any other electronic source is plagiarism. * 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. * 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?) * 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 someone else does. * If you have any questions or concerns about whether your behavior could be interpreted as plagiarism, please ask the assistants or instructors before you submit the work.   *For a detailed description of AGU policies, please refer to the website at* [*https://goo.gl/FjLhzH*](https://goo.gl/FjLhzH) |
| Flexibility | A tentative schedule for the entire semester is included in this syllabus. Although much thought and planning were put into the course schedule included in the syllabus, the schedule is tentative and subject to change as necessary to adapt to the specific needs of the class. Occasional departures from the schedule, such as additional readings, assignments, and activities, may be announced in class or via canvas during the semester. Therefore, it is each student’s responsibility to be in class, on time, and paying attention in order to keep up-to-date with whatever changes are made in the schedule. |
| Feedback | Your comments and suggestions are very important and will be taken into consideration during the course. Please do not hesitate to provide feedback about the course. You can give your feedback during the class, at office hours, or through e-mail. In addition, with the assistance of Teaching and Learning Center we will run mid-term and end of term feedbacks. |
| Text Book | Barnett Calculus for Bus, Econ, Life Sciences & Social Scie 14e |

**LEARNING ACTIVITIES**

|  |  |  |
| --- | --- | --- |
| **Activities** | **Number** | **Weight (%)** |
| Asynchronous Lectures | 14 | 30% |
| Face to Face Lectures | 14 | 30% |
| Exams | 2 | 25% |
| Homeworks | 14 | 15% |
| TOTAL | | 100% |

**ASSESSMENT**

|  |  |
| --- | --- |
| **Evaluation Criteria** | **Weight** (%) |
| Midterm Exam 1 | 30% |
| Midterm Exam 2 | 30% |
| Final Exam | 40% |
| Total | 100% |

For a detailed description of grading policy and scale, please refer to the website <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=36081&MevzuatTur=8&MevzuatTertip=5>

**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                 Pass

D+ 1,33  56-63                 Pass

D 1,00 50-55                 Pass

F 0,00 0-49     Fail

**COURSE LOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity** | **Duration** (hour) | **Quantity** | **Work Load** (hour) |
| Asynchronous Lectures | 2 | 14 | 28 |
| Face to Face Lectures | 2 | 14 | 28 |
| Self – learning/work | 4 | 7 | 28 |
| Exams | 10 | 2 | 20 |
| Homeworks | 4 | 14 | 56 |
|  |  | **General Sum** | **160** |

**ECTS: 6** (Work Load/25-30)

**CONTRIBUTION TO PROGRAMME OUTCOMES\***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| LO1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 |
| LO2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| LO3 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| LO4 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |

\* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

**SCHEDULE OF LECTURES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **Slot1: 8:10-9:00** |  |  |  |  |  |
| **Slot2: 9:10-10:00** |  |  |  |  |  |
| **Slot3: 10:10-11:00** | **Math 151.05 (IC) (BA08)** |  |  | **Math 151.05 (IC) (F0D09) QUIZ** |  |
| **Slot4: 11:10-12:00** | **Math 151.05 (IC) (BA08)** |  |  |  |  |
| **Slot5: 12:10-13:00** |  |  |  |  |  |
| **Slot6: 13:20-14:00** |  | **Math 111.01 (IC)**  **(F0D05)** |  |  |  |
| **Slot7: 14:20-15:00** |  | **Math 111.01 (IC)**  **(F0D05)** |  |  |  |
| **Slot8: 15:10-16:00** |  | **Math 111.02 (IC)**  **(F0D05)** |  |  |  |
| **Slot9: 16:20-17:00** |  | **Math 111.02 (IC)**  **(F0D05)** | **Math 121.01 (IC)**  **(F0D11)** |  |  |
| **Slot 10: 17:20-18:00** |  |  | **Math 121.01 (IC)**  **(F0D11)** |  |  |
| **Slot 11: 18:20-19:00** |  | **Math 151.05 (AS)** | **Math 121.01 (AS)** | **Math 111.01 (AS)** | **Math 111.02 (AS)** |
| **Slot 12: 19:20 – 20:00** |  | **Math 151.05 (AS)** | **Math 121.01 (AS)** | **Math 111.01 (AS)** | **Math 111.02 (AS)** |

**WEEKLY SCHEDULE**

|  |  |  |
| --- | --- | --- |
| **W** | **Topic** | **Outcomes** |
| 1  Oct. 3-7 | * 1. Functions   2. Elementary Functions: Graphs and Transformations | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 2  Oct. 10-14 | * 1. Linear and Quadratic Functions   2. Polynomial and Rational Functions | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 3  Oct. 17-21 | * 1. Exponential Functions   2. Logarithmic Functions | **LO1, LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 4  Oct. 24-28 | * 1. Right Triangle Trigonometry   2. Trigonometric Functions | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 5  Oct. 31- Nov. 5 | 2.1 Introduction to Limits | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 6  Nov. 7-11 | 2.2 Infinite Limit and Limits at Infinity  2.3 Continuity | **LO1, LO2** |
| Activities: Asynchronous Lectures, Problem set |
| Nov. 14-18 | Fall Break |  |
| 7  Nov. 21-25 | 2.4 The Derivative  2.5 Basic Differentiation Properties | **LO3** |
| Activities: **1st Midterm Exam,** Asynchronous Lectures, Problem set |
| 8  Nov. 29- Dec. 3 | 2.6 Differentials  2.7 Marginal Analysis in Business and Economics | **LO1, LO3** |
| Activities: Asynchronous Lectures, Problem set |
| 9  Dec. 6 -10 | 3.1 The Constant e and Continuous Compound Interest  3.2 Derivatives of Exponential and Logarithmic Functions  3.3 Derivatives of Trigonometric Functions  3.4 Derivatives of Products and Quotients | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 10  Dec. 13-17 | 3.5 The Chain Rule  3.6 Implicit Differentiation  3.7 Related Rates  3.8 Elasticity and Demand | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 11  Dec. 20-24 | 4.1 Firs Derivative and Graph | **LO1, LO3** |
| Activities: **2nd Midterm Exam,** Asynchronous Lectures, Problem set |
| 12  Dec 27-31 | 4.2 Second Derivative and Graphs  4.3 L’Hopital’s Rule | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 13  Jan. 3-7 | 4.4 Curve-Sketching Techniques | **LO2** |
| Activities: Asynchronous Lectures, Problem set |
| 14  Jan. 10-14 | 4.5 Absolute Maxima and Minima  4.6 Optimization | **LO1, LO2, LO3** |
| Activities: Asynchronous Lectures, Problem set |
| Jan. 17-26 | Final Exam |  |