



## Course Syllabus

**Fall 2021**

**Course Prefix/Number: MATH 103 01**  
**Course Title: MATHEMATICS FOR BUSINESS**  
**Class Meeting Times: TRU 10:00-10:50AM**  
**Instructional Modality: ONSITE**  
**Class Location: A103**

**Instructor: LEEN TAHA**  
**Office Location: A322**  
**Office Phone: 3707**  
**Email: LTAHA@AUK.EDU.KW**  
**Office Hours: LISTED BELOW**

### AUK Mission Statement

The American University of Kuwait is a liberal arts institution dedicated to teaching, learning, and scholarship. The University offers programs that provide students with the knowledge and skills necessary for lifelong learning and professional success. AUK enriches society by fostering an environment that encourages critical thinking, effective communication, personal growth, service, and leadership.

### College of Arts & Sciences Mission Statement

The College of Arts and Sciences (CAS) is committed to cultivating lifelong learning that empowers students to pursue technical competency in professional fields, self-awareness, a sense of civic and moral responsibility, and a breadth of vision in the tradition of liberal arts education. The College offers quality undergraduate programs leading to a bachelor's degree.

### Department of Mathematics and Natural Sciences Mission Statement

The Department of Mathematics and Natural Sciences is committed to excellence in teaching, research, and scholarly activities. The department prepares AUK students in different disciplines with the fundamental scientific and analytical skills critical to a quality liberal education. The department strives to prepare students to be successful in their careers and promotes lifelong learning.

### Course Description:

Review of exponential and logarithmic functions, Rate of change, first and second derivatives and their applications in economics and finance, Taylor approximation, matrix algebra and application, time value of money and interest rates - mathematical models, single and multiple cash flow applications, further applications to annuities and annuities due, applications to stocks and bonds. Prerequisite Math 100 or by placement test.

**Textbook: (Purchase ACCESS CODE only from AUK eCampus Store)**

Barnett, College Math for Bus, Econ, Life Sci, and Soc Sci, 14/e, Global Edition

Additional Resources: Lecture notes and practice worksheets will be posted on Moodle to supplement textbook and MyLab material.

**Learning Outcomes**

Upon completion of the course, students should be able to:

1. Apply some of the basic concepts of algebra and calculus to the quantitative methods used in the business world.
2. Model business situations and interpret the results.
3. Analyze problems, apply mathematical techniques and formulas to solve these problems and express their solutions in clear, correct English.

**COURSE TOPICS**

EXPONENTIAL AND LOGARITHMIC FUNCTIONS

MATRIX ALGEBRA

MATHEMATICS OF FINANCE

LINEAR EQUATIONS AND PROGRAMMING

DERIVATIVES

**Methodology:**

Classes will meet 3 days per week onsite. The material will be presented in live lecture form with topics taken from your text and supplemented through other sources. The material will also be presented via videos, PowerPoint Presentations and worksheets supplemented through MyLab. There will be evaluations/assessments, in-class “online” OR take-home assessments that will be collected for grading. Assignments will be posted on MyLab – categorized as either “assignments” or “quizzes”.

OFFICE HOURS: SUNDAY, TUESDAY, THURSDAY : 08:45-09:00, 11:50-01:00, 14:50-15:05

**Class Attendance:**

The American University of Kuwait recognizes that class attendance is an important element of students’ classroom success. Students are expected to attend all classes, laboratories, and/or required fieldwork. Because excessive absences prevent students from receiving full course benefit, and disrupt orderly course progress, AUK has established the following policy on class attendance:

Any student who misses MORE THAN 15% of class sessions of any course during a semester should expect to receive an (FN), unless s/he submits documented evidence to the course instructor of inpatient medical care, death of an immediate family member, academic instructional activities, or national athletic activities. If excused, students are required to satisfy all coursework due or assigned during their absence, as determined by the course instructor. If a student does not submit documented evidence for her/his absence exceeding the limit, it is the student’s responsibility to withdraw from the course by the specified deadline, as indicated on the Academic Calendar. Students who withdraw from a course receive a grade of “W.” Students who do not withdraw from a course nor submit supporting documents for excessive absences should expect to receive a grade of “FN” (failure for non-attendance).”

**Evaluation Standards:**

Student evaluation will be based on the following performance criteria:

1. Correct use of concepts, laws, formulas, and principles.
2. Appropriate use of language, terminology, and nomenclature
3. Accuracy of language, calculations, and simplifications.
4. Adequate interpretation of solutions to problems.
5. Presentation of homework and assessments.

**Assessment:** The final grades for the semester will be weighted as follows:

**Evaluation:**

<b><u>Category</u></b>	<b><u>Weight</u></b>
<b><u>MyLab Assignments, Participation</u></b>	<b><u>10%</u></b>
<b><u>MyLab Assessments/Quizzes</u></b>	<b><u>20%</u></b>
<b><u>Project</u></b>	<b><u>5%</u></b>
<b><u>Exam 1 – Midterm Exam</u></b>	<b><u>30%</u></b>
<b><u>Exam 2 – Final Exam</u></b>	<b><u>35%</u></b>

**AUK Official Grading Scale:**

<b>Letter Grade</b>	<b>Percentage</b>	<b>University Points</b>
A	94-100	4.0
A-	90-93	3.7
B+	87-89	3.3
B	84-86	3.0
B-	80-83	2.7
C+	77-79	2.3
C	74-76	2.0
C-	70-73	1.7
D+	67-69	1.3
D	64-66	1.0
D-	60-63	0.7
F	0-59	0.0

**CLARIFICATION:**

**PARTICIPATION:** Attendance and in class assignments.

**MYLAB Assignments:** MyLab assignments found under Homework on MyLab.

**MYLAB Quizzes:** Timed MyLab assignments to be completed with the support of notes, textbook, or any supporting material. Found under Quizzes/Tests Tab on MYLAB.

**Exams:** taken during class time – further info will be emailed. Exam 1 (midterm) will be on campus, Exam 2 (Final Exam, compulsory, comprehensive) will be on campus.

**Calculator usage is allowed.**

**Note:** To pass the course, your grade should be at least **70%**.

### **Disability Accommodations:**

AUK provides equal and inclusive educational environment in order to enable all students to meet and perform requisite academic standards and to participate in the opportunities and activities of its community. If you believe you can benefit from accommodations for a learning, physical, or mental health disability, [click here to book a session through the Counseling Center/Disability Services Booking Page](#), to ask about disability services at AUK, initiate an accommodation plan, or receive disability services. You can also email [counseling@auk.edu.kw](mailto:counseling@auk.edu.kw) if you need assistance in booking a session.

### **Academic Integrity:**

Academic integrity is the foundation of an academic community and without it none of the educational goals of the university can be achieved. All members of the AUK community are responsible for its academic integrity. Existing policies forbid cheating on examinations, plagiarism and other forms of academic dishonesty. The current policies are described in the AUK Academic Honesty Policy available from Students Center.

### **Code of Academic Honesty and Integrity:**

Upon admission to the American University of Kuwait, students agree to act responsibly in all areas of academic, personal and social conduct and to take full responsibility for their individual and collective action. Such regulations are found in the American University of Kuwait Catalogue, Student Handbook, and the AUK website at [www.auk.edu.kw](http://www.auk.edu.kw). Any question of interpretation regarding the code of academic honesty and Integrity shall be reported to the appropriate academic dean. The Code shall be reviewed annually at the discretion of the academic deans. Any student or student organization found to have committed the cited violations or misconduct, either on or off campus, is subject to the disciplinary sanctions outlined in adjudication procedures.

### **Plagiarism:**

The term “plagiarism” includes, but is not limited to, an attempt of an individual to claim the work of another as the product of his or her own thoughts regardless of whether that work has been published. Plagiarism includes, but is not limited to, quoting improperly or paraphrasing text or other written materials without proper citation on an exam, term paper, homework, or other written material submitted to an instructor as one’s own work. Plagiarism also includes handing in a paper to an instructor that was purchased from a term paper service or downloaded from the Internet and presenting another person’s academic work as one’s own.

### **Cheating:**

The term “cheating” includes but is not limited to, copying homework assignments from another student; working together with another individual on a take-home test or homework when not approved by the instructor, looking at and/or copying text, notes or another person’s paper during an examination when not permitted to do so. Cheating also includes the giving of work information to another student to be copied and/or used as his or her own. This includes but is not limited to giving someone answers to exam questions either when the exam is being given or after having taken an exam; informing another student of specific questions that appear or have appeared on an exam in

the same academic semester; giving or selling a term paper, report, project or other restricted written materials to another student.

### **Academic Support:**

Learning Support Services focuses on empowering students to become independent and successful learners by developing their literacy skills, enhancing their understanding, and helping them improve their academic and study skills. Learning Support Services is comprised of two centers: the Tutoring Center and the Writing Center. The Tutoring Center provides free academic support in various subjects to AUK student. Email: [tutoringcenter@auk.edu.kw](mailto:tutoringcenter@auk.edu.kw).

The Writing Center provides multilingual support (English, Arabic, French, and Spanish) through individual or small-group consultations. Email: [writingcenter@auk.edu.kw](mailto:writingcenter@auk.edu.kw)

## Class Policies-

1. Participation and attendance are essential to your success in this class. Asking questions and keeping up with assignments will be critical to your understanding of material. It is the students' responsibility to find out about assigned tasks in the event they miss a lecture.
2. Be on time. Please make arrangements to log in early to avoid any connectivity issues. Lectures will be open 5 minutes before class is set to begin. If you are scheduled to attend on campus, please be on time.
3. In the case of an emergency, you may attend online. Please provide official documentation proving inability to be in class.
4. Every week an assignment or quiz will be submitted for grading. Assignments will be completed using **MyLab**. Guidelines will be emailed to clarify submissions and MyLab registration. **No late assignments** will be accepted. For "live"/ "real time" assessments/evaluations – no make-ups unless official medical documentation is provided or proof of inability to connect. Calculator usage is prohibited throughout the semester for assignments, quizzes, and assessments.
5. All **assignments and quizzes** will be administered using the online service **MyLab**. This lab is directly connected to your textbook and provides a wide variety of services to students. You will have online access to your textbook, tutorials, and sample practice problems. Access to the service must be acquired within the first week of classes and is available to purchase online and through the AUK Bookstore.
6. **Academic Honesty:** If you submit work that you did not complete by yourself, or if you are caught cheating on an exam or a homework assignment, you will receive a grade of 0. You may also be subject to further disciplinary action, since such behavior is an offence under AUK's Student Code of Conduct (Section 4, Dishonesty and False Representation).
7. **Submission guidelines**
  - Messy, hard to follow work will not be graded.
  - Your name and student ID must be written on the work to be submitted. No name = no grade.
  - Online submissions of Assessments must be in PDF format sent by email. Download an app called CamScanner or ScanBot to convert photos into PDFs.
8. **Two Exams** will be given this semester – the midterm and comprehensive, compulsory final exam as per the AUK Final Exams schedule. Missing an assessment will result in a grade of **zero**, ***unless official documentation is provided.***
9. Check your emails regularly, all communication and announcements are made via email.
10. Please email me during business hours – (8AM-5PM) and expect a reply within 24 business hours.
11. To schedule meetings during my office hours – email me 24 hours in advance to schedule an appointment. Once I receive your request, a link for the meeting will be sent.
12. Please be sure to use your official AUK email account, write your full name, and indicate which class and section you are taking (**Class ###, DAY/TIME section**) when you send me an email. If you have a question, please check the syllabus first and if your question is not answered there,

then please feel free to send an email and I will be happy to clarify. I respond to questions **via email** within 24 hours of receiving them.

- 13.** The project will be submitted on Turn It In via Moodle. For every day it is submitted late, 10% will be deducted from the final grade. For a similarity percentage greater than 29%, 10% will be deducted for every additional 10% increment. For a similarity percentage greater than 50%, the project will not be graded and a zero will be recorded.

### Receipt of Course Syllabus MATH 103

I (Print your Name) .....Student ID ..... have registered for MATH 103, I have received a copy of the Course Syllabus.

**I know that the Language of Instruction at AUK is English.** If I have problems understanding a technical term used in math I will refer to the text's glossary. If having done this I still fail to understand then I will ask for an explanation of the meaning. All my conversations and submissions will be conducted and written in English.

**I understand** that I can reach the instructor via e-mail, and that I can virtually meet with the instructor by appointment. I also understand that should I have *any* doubt about requirements in this course *I am responsible for seeking clarification.*

I know that all written communication to and from the instructor regarding this course will be handed out in class or sent via my AUK e-mail. I understand that I must check my AUK e-mail regularly (i.e. before every class) for any important information about this course sent to me from the instructor. I note that failure to check my e-mail does not constitute an excuse for lack of information, misunderstanding, etc.

**I know** that I am responsible for learning. I will be present in class during the week that permits me to be on campus (determined by Registrar)

**I know** that virtual attendance is expected. I know that a poor virtual attendance record may result in a lower course grade.

**I know** that participation is different from virtual attendance. I must come to class prepared, ready and willing to ask and answer questions relevant to the topic at hand. I must bring the course textbook/learning portfolio, a calculator and my own writing materials to take notes during the class.

**I know** that I am free to raise questions at any time, but that I must show courtesy to my peers and instructor. I must behave as a professional. I understand that disruptive behavior in class is not acceptable. I know that Mobile phones are to be turned off during class and that cell/mobile phones are not allowed during assessments.

**I know** that I must take assessments when they are scheduled. I know that no make-up assessments will be given, nor will additional projects be assigned to increase a grade before or after an exam or quiz, or at the end of the semester.

**I know** that students caught cheating, or using a mobile phone will get an "F" for that assessment.

**I have been given** a copy of this statement for my retention and future reference.

I know cameras must be switched on. I must be seated in a quiet place. I will not record any part of the session and respect my peers' and instructor's privacy.

Effective eLearning requires the following:

- Steady internet connection.
- Computer, laptop, or tablets. Phones can be used as a backup.
- Microphones and headsets.
- Cameras.
- A quiet space.
- Other requirements as indicated by the instructor.

Video-recording of class sessions (by instructors and/or students) is prohibited.

The privacy of the session is to be maintained (no other members of the household should be available during the session).

Professional physical appearance is expected during online classes. All participants in the online class should ensure proper attire and setting (blurred background can be used to accommodate settings).

Course objectives, expectations and the grading policy have been explained.

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*Signature*

*Date*

**Fall 2021 Schedule \***



<b>Week</b>	<b>Odd University ID numbers</b> (ending with 1, 3, 5, 7, 9) For example: S00012345	<b>Even University ID numbers</b> (ending with 0, 2, 4, 6, 8) For example: S0003456
<b>September 26-30</b>	<b>Online (All Students)</b>	
<b>October 3 - 7</b>	On-campus	Off Campus: Online study only
<b>October 10-14</b>	Off Campus: Online study only	On-campus
<b>October 17-21</b>	On-campus	Off Campus: Online study only
<b>October 23</b>	<b>Online (All Students)</b>	
<b>October 24-28</b>	Off Campus: Online study only	On-campus
<b>October 31 – November 4</b>	On-campus	Off Campus: Online study only
<b>November 7-11</b>	Off Campus: Online study only	On-campus
<b>November 14- 18</b>	<b>Midterm Exams – On Campus for Odd ID Numbers, Online learning for Even ID Numbers</b>	
<b>November 21-25</b>	Online	Midterms on Campus
<b>November 28 – December 2</b>	Off Campus: Online study only	On-campus
<b>December 5-9</b>	On-campus	Off Campus: Online study only
<b>December 12-16</b>	Off Campus: Online study only	On-campus
<b>December 19-23</b>	On-campus	Off Campus: Online study only
<b>December 26-30</b>	<b>Winter break – University Closed</b>	
<b>January 2- 6</b>	Off Campus: Online study only	On-campus
<b>January 9-13</b>	On-Campus	Off Campus: Online study only
<b>January 16-20</b>	<b>Final exams -On Campus (All Students)</b>	
*Schedule is subject to change per Private Universities Council decisions		
Online Classes will be held in real time, i.e. synchronously, according to class schedule. <b>Moodle</b> , the university's mandated learning management system (LMS) is the main gateway to access online classes at AUK.		

- Students who have special medical cases preventing them from physically attending classes are requested to submit a medical report certified by the Ministry of Health to the office of the registrar by email: [registrar@auk.edu.kw](mailto:registrar@auk.edu.kw).
- International students who are still abroad are advised to secure their return to Kuwait as soon as possible. Any complications regarding your return to Kuwait will be addressed by the Office of the Registrar on a case-by-case basis.

## Course Objectives

### **M103.1 Exponential and Logarithmic Functions:**

At the end of this course a student will be able to

Code	Objective
M103.1.1	Evaluate exponential functions
M103.1.2	Graph exponential functions of the form $y = b^x$ where $b > 1$
M103.1.3	Graph exponential functions of the form $y = b^x$ where $b < 1$
M103.1.4	Graph exponential functions of the form $y = b^{-x}$ where $b > 1$
M103.1.5	Graph exponential functions of the form $y = b^{-x}$ where $b < 1$
M103.1.6	Solve exponential equations of the form $a^x = a^k$
M103.1.7	Convert between logarithmic and exponential form
M103.1.8	Use properties of logarithms to simplify expressions
M103.1.9	Change the base of a logarithmic function
M103.1.10	Recognize the natural logarithm as a logarithm having $e$ as a base
M103.1.11	Evaluate natural logarithms
M103.1.12	Recognize a common logarithm as a logarithm having 10 as a base
M103.1.13	Evaluate common logarithms
M103.1.14	Solve logarithmic equations of the form $\log_b(x) = a$
M103.1.15	Solve multistep exponential equations
M103.1.16	Solve multistep logarithmic equations

### **M103.2 Mathematics of Finance:**

At the end of this course a student will be able to

Code	Objective
M103.2.1	Find the compound amount for a given investment
M103.2.2	Determine interest rates
M103.2.3	Determine how long it will take a principal amount of money to change in size
M103.2.4	Find present values of future payments
M103.2.5	Determine compound amounts when the interest is compounded continuously
M103.2.6	Determine interests when the interest is compounded continuously
M103.2.7	Determine the periodic payment amount of an annuity
M103.2.8	Find present values of annuities
M103.2.9	Find future values of annuities
M103.2.10	Solve problems involving the amortization of loans
M103.2.11	Construct amortization schedules

### **M103.3 Matrix Algebra:**

At the end of this course a student will be able to

Code	Objective
M103.3.1	Identify characteristics of matrices
M103.3.2	Find transposes of matrices

M103.3.3	Perform matrix addition and scalar multiplication
M103.3.4	Multiply matrices
M103.3.5	Find the size of a resulting matrix
M103.3.6	Identify an identity matrix
M103.3.7	Perform mixed operations with matrices
M103.3.8	Find inverses of matrices
M103.3.9	Solve matrix equations using inverses

#### **M103.4 Derivatives:**

At the end of this course a student will be able to

<b>Code</b>	<b>Objective</b>
M103.4.1	Find the derivative of a constant
M103.4.2	Find the derivative of functions of the form $x^n$
M103.4.3	Find the derivative of functions of the form $a^x$
M103.4.4	Find the derivative of functions of the form $\log_a(x)$
M103.4.5	Find the derivative of the sum of two functions
M103.4.6	Find the derivative of the product of two functions
M103.4.7	Find the derivative of quotient of two functions
M103.4.8	Use the chain rule to find the derivative of the composition of two functions
M103.4.9	Find the slopes of curves at a given point
M103.4.10	Find the equation of a tangent line to a curve at a given point
M103.4.11	Identify the derivative as a rate of change of a function
M103.4.12	Find marginal costs
M103.4.13	Find marginal revenues