MATH FOR LIFE in Spring 2021 (MA1005A)

Course Code	MA1005A	**Professor(s)**	Taylor Coffman
Prerequisites	None	**Office Number**	PL (1st Floor)
Class Schedule	MW: 10:35-11:55 in PL-1 R: 10:35-11:55 in Q-704	**Office Hours**	Teams office hours by appointment
Credits	4	**Email**	tcoffman@aup.edu
Semester	Spring 2021	**Office Tel. Ext.**	

Course Description

This course, *Math for Life*, is very much an exploration of mathematical problems that carry significant relevance in the real world and in our daily lives. The aim is to help you acquire the knowledge and skills to solve a variety of problems that you will face at school, at home and at work. The class is required for students in majors that do not require additional math coursework. As such, we will strike a balance between applying already known concepts and new concepts to practical and relevant examples.

There is not a single underlying context for the topics we will discuss in the coming months. The goal is to keep things open and to explore the mathematical ideas in as many different and relevant contexts as possible. We will consider issues dealing with the environment, the economy, politics, your personal finances and investments, your nutrition, to name a few. Each of these aforementioned areas have numerous quantitative aspects. Reasoning, solving and communicating within these quantitative situations is our goal.

An additional objective this semester is to develop a positive attitude and appreciation towards mathematics and quantitative reasoning in general. I do not necessarily expect you to come away with a newfound love of math, but I do certainly hope you will come away knowing that these topics do exist and that they do have a purpose in the lives of many people, even yours. Ask all of the questions that you have and let's work together to see how the ideas discussed can have an impact in your life.

Course Learning Outcomes

Develop a positive approach to mathematics.
Appreciate the use of mathematics in modeling the world.

Reason with quantitative information – in words, numbers and graphs and charts.
Clearly communicate quantitative information in words, in numbers and with graphs.
Develop strategies for solving problems.

General Education

GLACC:

The Global Liberal Arts Core Curriculum (GLACC) degree requirements include the following categories of courses:

- *Integrative Inquiry (coded CCI)*
- *Experiential learning (coded CCX)*
- *Research, Interpretation, and Writing (coded CCE)*
- *Digital Literacy and Communication (coded CCD)*
- *Disciplinary Research Methods and Writing (coded CCR)*
- *Quantitative Reasoning (coded CCM)*
- *Experimental Reasoning Course with Lab (coded CCS)*
- *Expression Française (coded FR)*
- *AUP Capstone (coded CCC)]*

This course can be used to fulfill the ____CCM_____requirement and as such has the following learning outcomes (Learning Outcomes for GLACC components are defined on the AUP GLACC Website):

1. Develop a positive approach to mathematics
2. Appreciate the use of mathematics in modeling the world
3. Reason with quantitative information – in words, numbers, and graphs
4. Clearly communicate quantitative information in words, numbers, and with graphs
5. Develop strategies for solving problems

Course Outline

As each class flows a bit differently, the following topic/chapter schedule is provisional:

- Review

    - fractions and decimals
    - order of operations
    - exponents
    - solving equations
- Chapter 2 – Approaches to Problem Solving
    - units and conversion
    - problem solving with units
    - unit systems (US, metric, temperature, energy, density, etc.)
    - problem solving strategies
- Chapter 3 – Numbers in the Real World
    - percentages and percentage change
    - abuses of percentages
    - scientific notation
    - uncertainty (estimation, error, accuracy and precision)
- Chapter 4 – Managing Money
    - understanding personal finances
    - compound interest
    - savings plans and investments
    - loans
    - understanding the 2008 financial crash
- Chapter 5 – Statistical Reasoning
    - statistical study
    - tables, graphs, and charts

    - correlation and causality
- Chapter 6 – Putting Statistics to Work
    - mean, median, and mode
    - outliers
    - symmetry, skewness, and variation
    - standard deviation
    - normal distribution
    - statistical inference
- Algorithms and problem solving
- Microsoft Excel - weekly lab online

Textbooks

This course doesn't have any textbook.

Attendance Policy

Students studying at The American University of Paris are expected to attend ALL scheduled classes, and in case of absence, should contact their professors to explain the situation. It is the student’s responsibility to be aware of any specific attendance policy that a faculty member might have set in the course syllabus. The French Department, for example, has its own attendance policy, and students are responsible for compliance. Academic Affairs will excuse an absence for students’ participation in study trips related to their courses.

Attendance at all exams is mandatory.

IN ALL CASES OF MISSED COURSE MEETINGS, THE RESPONSIBILITY FOR

COMMUNICATION WITH THE PROFESSOR, AND FOR ARRANGING TO MAKE UP MISSED WORK, RESTS SOLELY WITH THE STUDENT.

Whether an absence is excused or not is ALWAYS up to the discretion of the professor or the department. Unexcused absences can result in a low or failing participation grade. In the case of excessive absences, it is up to the professor or the department to decide if the student will receive an “F” for the course. An instructor may recommend that a student withdraw, if absences have made it impossible to continue in the course at a satisfactory level.

Students must be mindful of this policy when making their travel arrangements, and especially during the Drop/Add and Exam Periods.

Grading Policy

Homework 30%

Group quizzes & Weekly Excel Lab 20%

Midterm 15%

Project 20%

Final Exam 15%

Note: This class does not have an online gradebook that can be accessed at any time. Instead, if you want to know about the status of your grade, please reach out and I'll send you a grade report.

Other

Homework

We learn math by doing math. Homework plays a big role in this class – 30% is significant so keep up with the assignments.

Every Thursday I will post a pdf on Teams which contains five problems. These five problems will typically have multiple parts. The homework is to be submitted the following Thursday. That is, you have one week to complete each assignment. I will not accept late assignments. You

must send me scans or pictures of your homework electronically, via a direct message in Teams (no email please) by Thursday night at midnight.

You will be graded on completeness and overall presentation of your work. The homework is not graded on accuracy. However, I will always post a fully worked out solution key, so it is your responsibility to make sure your answers, solution methods, and explanations alight with the posted solution key. Of course, I am available for any questions before or after the homework is due.

The midterm and final exam will look very similar to what you see on the homework, so it is in your best interest to check your answers against mine.

Technology

- Teams: homework, syllabus, announcements, private messages, class messages, links, etc.

Textbook

- none

Covid-19 temporary amendments

Students studying at The American University of Paris are STILL EXPECTED TO ATTEND ALL scheduled classes. Due to the Covid-19 pandemic, students will have the option of attending classes remotely when special circumstances apply. For example, when students are placed under quarantine by the French authorities or by their doctor, or when students present symptoms of Covid-19 and are directed, by their doctor or the AUP Health Office, to remain home. It is still the student's responsibility to be aware of any specific attendance policy that their professor might have set in the course syllabus. In particular, Students attending remotely from distant Time Zones should check with their professors about the specific attendance policy for remote learners.