
CALCULUS I in Spring 2021 (MA1030A)

Course Code	MA1030A	Professor(s)	, Ruth Corran
Prerequisites	None	Office Number	PL-110
Class Schedule	MW: 09:00-10:20 in PL-1 R: 13:45-15:05 in PL-1	Office Hours	By appointment.
Credits	4	Email	fbalestrieri@aup.edu, rcorran@aup.edu
Semester	Spring 2021	Office Tel. Ext.	

Course Description

Introduces differential and integral calculus. Develops the concepts of calculus as applied to polynomials, logarithmic, and exponential functions. Topics include: limits, derivatives, techniques of differentiation, applications to extrema and graphing; the definite integral; the fundamental theorem of calculus, applications; logarithmic and exponential functions, growth and decay; partial derivatives. Appropriate for students in the biological, management, computer and social sciences.

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.

Understand concepts behind differential calculus, including calculation of derivatives using various techniques.

Understand concepts behind integral calculus, including calculation of definite and indefinite integrals using various techniques.

Show competency in using both algebraic and geometric interpretations of the concepts of calculus.

Be able to apply the techniques (including linearization and optimization) of differential and integral calculus to problems in other disciplines.

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 Quantitative Reasoning CCM requirement and as such has the following 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.

Course Outline

This is a tentative weekly schedule.

Week	Starting	Topic	Sections of textbook	Test on
1	18-Jan-21	Revision of Functions and Graphs	(Chapter 1 of text)	
2	25-Jan-21	Introduction to Limits	(Sections 2.1, 2.2, 2.3)	
3	01-Feb-21	Introduction to Continuity	(2.4, 2.5)	Chapter 1
4	08-Feb-21	Definition of the Derivative	(3.1)	
5	15-Feb-21	About the Derivative (4 classes)	(3.2, 3.3., 3.4, 3.5)	Chapter 2
6	22-Feb-21			
7	01-Mar-21	Calculating Derivatives	(3.6, 3.7, 3.8, 3.9)	
8	08-Mar-21	Using Derivatives	(4.1, 4.2, 4.3, 4.4)	Chapter 3

9	15-Mar-21	More applications of Derivatives	(4.5, 4.6, 4.7, 4.8, 4.9, 4.10)	
10	22-Mar-21	Definition and Calculating Integrals	(5.1, 5.2, 5.3, 5.4)	Chapter 4
11	29-Mar-21	More techniques for Calculating Integrals	(5.5, 5.6)	
12	05-Apr-21	Using Integrals	(6.1, 6.2, 6.3, 6.7, 6.8)	Chapter 5
13	12-Apr-21	Techniques of Integration	(II.3.1, II.3.4, II.3.5, II.3.6, II.3.7)	
14	19-Apr-21	Calculus of several variables	(III.4.1, III.4.3, III.5.1)	Chapters 6 & 7
15	26-Apr-21	Review		

Textbooks

Title	Author	Publisher	ISBN	Required
Calculus volume 1	Gilbert Strang et al.	openstax - ebook	978-1-947172-13-5	Yes
Calculus volume 2	Gilbert Strang et al.	openstax - ebook	978-1-947172-14-2	No
Calculus volume 3	Gilbert Strang et al.	openstax - ebook	978-1-947172-16-6	No

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	35%
Class Tests	35%
Final	30%

Other
