Philadelphia University	PHILADEL PHIA	Approval date:
Faculty of Science	UNIVERSITY	Issue:
Department of Mathematics	THE WAY TO THE FUTURE	Credit hours: 3
Academic year 2023/2024	Course Syllabus	Bachelor

Course information

Course #	Course title		Prer	equisite	
0216111	Calculus 1				
	Course type		Class	time	Room #
□ University Requirement □ □ Major Requirement □		I Faculty Requirement	Sun, 12:40 -	Tues - 13:55	21009
		Elective 🗹 Compulsory	Sat, 8:15 -	Mon - 9:30	6722
Degree / NQF Level 🗹 Diploma degree (6)		Bachelor de	egree (7)		

Instructor Information

Name	Office No.	Phone No.	Office / MS team Hours	E-mail
Dr. Heba Ayyoub	21019	2466	Sat, Mon 09:45 - 11:00	haway happiladal phia adu ia
			Sun, Tues 11:15 – 12:30	<u>nayyouo@phnadeiphna.edu.jo</u>

Learning Method

Learning Method		
☑ Face to face	□ Online	□ Blended

Course Description

Course Description

- 1. Review of Elementary Mathematics.
- 2. Limits and Continuity.
- 3. The Derivative; The Process of Differentiation.
- 4. The Mean Value Theorem; Applications of The First and Second Derivative.
- 5. Integration.
- 6. Some Applications of the Integral.

Course Objectives

- 1. Define the basic concepts and principles of differential and integral calculus of real functions.
- 2. Interpret the geometric meaning of differential and integral calculus.
- 3. Apply the concept and principles of differential and integral calculus to solve geometric and physical problems.
- 4. Organize solving of complex problems by combining the acquired mathematical concepts and principles.

Course Learning Outcomes

	Outcomes				
Kn	owledge				
K1	Understand the basic properties of algebraic and transcendental functions, and their operations.				
K2	Know the concepts of limits and continuity.				
K3	C3 Understand the definition of derivative and integral, and how to differentiation and integration elementary functions.				
Ski	lls				
S 1	Students should be able to use derivatives and integrals tosolve real-life problems involving optimization and areas.				
S 2	52 Use Mathematical Packages, like GeoGebra to solveproblems.				
Соі	npetence				
C1	Thinking reasonably and the ability to make decisions.				
C2	Work in a team to implement one of the tasks of the course.				

Learning Resources

Course textbook	• Anton H., Bivens I., Davis S. (2011). Calculus, 10 th edition, John Wiley and Son.	
Supporting References	• Stewart J. (2015). Calculus: Early Transcendental, 8 th edition, Brooks Cole.	
Supporting websites	• GeoGebra: <u>https://www.geogebra.org/</u>	
Teaching Environment	☑ Classroom □ Laboratory □ Learning platform □ Other	

Meetings and Subjects Timetable

Week	Торіс	Learning Methods	Tasks
1 Oct 12 – Oct 16	Course Syllabus: Explanation of the study plan for the course, and what is expected to be accomplished by the students. Technology Preliminaries: Moodle, Microsoft Teams, Geogebra.	Face to Face Learning	
	Oct 16: Last day to add / drop a course		
2 Oct 19 – Oct 23	CHAPTER 0: BEFORE CALCULUS 0.1 Functions	Face to Face Learning	
3 Oct 26 – Oct 30	0.2 New Functions from Old	Face to Face Learning	
4 Nov 2 – Nov 6	0.4 Inverse Functions; Inverse TrigonometricFunctions	Face to Face Learning	Quiz
5 Nov 9 – Nov 13	0.5 Exponential and Logarithmic Functions	Face to Face Learning	Assignment
6 Nov 9 – Nov 13	CHAPTER 1: LIMITS AND CONTINUITY 1.1 Limits (An Intuitive Approach) 1.2 Computing Limits	Face to Face Learning	
Nov 23 – Dec 4: Midterm Exam			

7 Nov 23 – Nov 27	1.3 Limits at Infinity; End Behavior of a Function Continuity1.4 Continuity of Trig., Exp., Inverse functions.	Face to Face Learning	Quiz
8 Nov 30 – Dec 4	CHAPTER 2: THE DERIVATIVE 2.1 Tangent Lines and Rates of Change 2.2 The Derivative Function 2.3 Introduction to Techniques of Differentiation 2.4 The Product and Quotient Rules	Face to Face Learning	
9 Dec 7 – Dec 11	2.5 Derivatives of Trigonometric Functions2.6 The Chain Rule.	Face to Face Learning	
10 Dec 14 – Dec 18	2.7 Implicit Differentiation	Face to Face Learning	Assignment
11 Dec 21 – Dec 25	 CHAPTER 3: THE DERIVATIVE IN GRAPHING AND APPLICATIONS 3.1 Increase, Decrease, and Concavity 3.2 Relative Extrema; Graphing Polynomials 3.4 Absolute Maxima and Minima 3.8 Rolle's Theorem; Mean-Value Theorem 	Face to Face Learning	
12 Dec 28 – Jan 1	CHAPTER 4: INTEGRATION 4.2 The Indefinite Integral 4.3 Integration by Substitution	Face to Face Learning	Quiz
13 Jan 4 – Jan 8	4.5 The Definite Integral4.6 The Fundamental Theorem of Calculus4.9 Evaluating Definite Integrals by Substitution	Face to Face Learning	
14 Jan 11– Jan 15	CHAPTER 6: EXPONENTIAL, LOGARITHMIC, AND INVERSE TRIGONOMETRIC FUNCTIONS 6.1 Exponential and Logarithmic Functions 6.2 Derivatives and Integrals Involving Logarithmic Function	Face to Face Learning	
15 Jan 18 – Jan 22	6.3 Derivatives of Inverse Functions; Derivatives and Integrals Involving Exponential Function6.5 L'Hôpital's Rule; Indeterminate Forms	Face to Face Learning	
16	Jan 25 – Feb 5: Final Exam		

Assessment Methods and Grade Distribution

Assessment Methods	GradeWeight	Assessment Time (Week No.)	Link to Course Outcomes	
Mid Term Exam	30%	8	K1, K2, C1	
Various Assessments *	30%	Continuous	S1, S2, C1, C2	
Final Exam	40%	16	K1, K2, K3, C1	
Total	100%			

* Includes: quiz, in class and out of class assignment, presentations, reports, videotaped assignment, group or individual projects.

- 1. At least two quizzes will be given. Students are not permitted to make up any missed quizzes.
- 2. Homework problems will be assigned on Microsoft Teams/Moodle. Students are required to submit their solutions by the specified due dates. Late submissions will not be accepted.
- 3. Students are not allowed to copy solutions for homework problems from other students or any other resources. However, discussing problems with other students is encouraged.
- 4. The final exam will cover all topics presented in the syllabus.

Course Polices

Policy	Policy Requirements	
Passing Grade	The minimum passing grade for the course is (50%).	
Missing Exams	 Missing an exam without a valid excuse will result in a zero grade to be assigned to the exam or assessment. A Student who misses an exam or scheduled assessment, for a legitimate reason, must submit an official written excuse within a week from the exam or assessment due date. A student who has an excuse for missing a final exam should submit the excuse to the dean within three days of the missed exam date. 	
Attendance	The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to four lectures days. If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory excuse accepted by the dean of the faculty, she/he will be prohibited from taking the final exam and the grade in that course is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the course without a statement of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a compulsive excuse accepted by the dean of the course is due to illness or a computed by the dean of the course is due to illness or a	
Academic Honesty	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as: cheating, plagiarism (academic theft), collusion, and violating intellectual property rights.	