



Jubail University College

Department of General Studies

COURSE SYLLABUS - SEMESTER 331

Course Code & Number	MATH 111		
Course Title	Calculus 1 [4-0-4]		
Instructor	Dr. Dianne Reyos-Malabanan		
Office Location	Room 80		
Office Hours	Day	Period	
	Saturday	3, 4, 5, 6, 7, 8	
	Sunday	1, 2, 3, 6, 7, 8	
	Monday	3, 4	
	Tuesday	1, 2, 3, 6, 7, 8	
	Wednesday	3, 6	
Instructor's Office Phone	03-3459000 Extension: 3515		
Instructor's Email	malabanand@ucj.edu.sa		
Section numbers		201	
Class hours	Day	Period	
	Saturday		
	Sunday	4, 5	
	Monday		
	Tuesday		
	Wednesday	1, 2	
Prerequisites	MATH 112		
Course Rationale	MATH 111 is the first of three calculus courses. It is directed at computer science and interior design students. It covers basic material on functions, limits and continuity, and techniques of differentiation to give students the necessary differential calculus tools, concepts, and methods to work in their chosen field.		

Course Objectives	<ol style="list-style-type: none"> 1. To understand basic concepts of functions and some of their properties 2. To know the concepts of limits and continuity 3. To calculate limits including infinite limits 4. To know and apply the rules of differentiation 5. To know terminologies used in calculus 6. To apply calculus concepts into different applications 7. To get approximate value of different functions using calculus concepts 												
Methods of Instruction	Lecture, Discussion, Cooperative Learning, Practice Method, Worksheets												
Required Textbook	CALCULUS: EARLY TRANSCENDENTALS (9th Edition) Authors: Howard Anton, Irl Bivens, Stephen Davis Publisher: John Wiley and Sons, Inc. Place of Publication: USA ISBN: 978-0470-39875-3												
Proposed Websites	http://www.mizdhi.weebly.com												
Grading Scheme	<table> <tr> <td>Quiz 1</td> <td>10%</td> </tr> <tr> <td>Quiz 2</td> <td>10%</td> </tr> <tr> <td>Assignments/Worksheets/Participation</td> <td>20%</td> </tr> <tr> <td>Midterm Exam</td> <td>20%</td> </tr> <tr> <td>Final Exam</td> <td>40%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	Quiz 1	10%	Quiz 2	10%	Assignments/Worksheets/Participation	20%	Midterm Exam	20%	Final Exam	40%	Total	100%
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Midterm Exam	20%												
Final Exam	40%												
Total	100%												

Jubail University College Grading Scale

Total Points	Letter Grade	Percentage	Grade Point
	A ⁺	95-100%	4.0
	A	90-<95%	3.75
	B ⁺	85-<90%	3.5
	B	80-<85%	3.0
	C ⁺	75-<80%	2.5
	C	70-<75%	2.0
	D ⁺	65-<70%	1.5
	D	60-<65%	1.0
	F	0-<60%	0.0
	W	Withdrawal	N/A
	WP	Withdrawal while Pass	N/A
	WF	Withdrawal while Fail	0.0
	DN	Denial	0.0
	I	Incomplete	N/A
	P	Pass	N/A

COURSE OUTLINE

Week No.	Week Dates	Topic	Suggested Problems
1	1/9 – 5/9	CHAPTER 0: FUNCTIONS 0.1. Functions 1 0.2. New Functions from Old	Ex. 0.1: 1,2,7,9,10,23,24 Ex. 0.2: 27,28,29,31,32,33,34
2	8/9 – 12/9	0.3. Families of Function 0.4. Inverse Function; Inverse Trigonometric Functions 0.5. Exponential and Logarithmic Functions Parametrical Equations	Ex. 0.3: 11,25,26,27,35,36 Ex. 0.4: 9,10,13,18 Ex. 0.5: 1,2,5,6,11,12,13,14,15,16,24,25, 26,27,28,29,30
3	15/9 – 19/9	CHAPTER 1: LIMITS AND CONTINUITY 1.1. Limits (An Intuitive Approach) 1.2. Computing Limits	Ex. 1.1: 1,2,3,4,5,6,7,8,9,10 Ex. 1.2: 2,4,5,9,10,12,15,16,17,18,19,20, 21,22,23,31,32
4	22/9 – 26/9	1.3. Limits at Infinity. End Behavior of a Function 1.5. Continuity	Ex. 1.3: 9,10,11,13,14,15,17,18,19,20,21, 23,27,29,31,32,33 Ex. 1.5: 1,2,3,4,5,6,11,13,14,17,18,19,21, 22,23,24,25,26,27,28,29,30,31, 32
5	29/9 – 3/10	1.6. Continuity of Trigonometric, Exponential and Inverse Trigonometric Functions Quiz 1 (10%)	Ex. 1.6: 4,7,8,9,10,23,25,27,28,30,33,39, 40
6	6/10 – 10/10	CHAPTER 2: THE DERIVATIVE 2.1. Tangent Lines. Velocity and Rates of Change 2.2. The Derivative Function	Ex. 2.1: 11,12,13,14,27,28 Ex. 2.2: 9,10,11,12,15,16,17,19
7	13/10 – 17/10	2.3. Techniques of Differentiation 2.4. The Product and Quotient Rules	Ex. 2.3: 1,3,5,8,9,10,17,18,21,22,41,42, 43,44 Ex. 2.4: 2,3,5,6,9,11,13,14,29,30,31,32, 33,34
	20/10 – 24/10	MID SEMESTER BREAK	
8	3/11 – 7/11	2.5. Derivatives of Trigonometric Functions 2.6. The Chain Rule	Ex. 2.5: 1,2,4,5,6,9,13,15,16,17,19,20, 23,24,26,29 Ex. 2.6: 7,8,12,16,17,18,21,23,24,27,31, 32,33,43,44,47,51,52
9	10/11 – 14/11	Mid-Term Exam (20%)	

10	17/11 – 21/11	CHAPTER 3: TOPICS IN DIFFERENTIATION 3.1. Implicit Differentiation 3.2. Derivatives of Logarithmic Functions	Ex. 3.1: 3,4,5,6,7,9,10,11,12,17,18 Ex. 3.2: 1,2,5,6,9,10,11,12,13,14,19,20,21,22,23,24
11	24/11 – 28/11	3.3. Derivatives of Exponential and Inverse Trigonometric Functions 3.6. L'Hopital's Rule. Indeterminate Forms	Ex. 3.3: 15,17,20,21,22,31,32,33,34,35,37,39,41,43,44,46 Ex. 3.6: 7,8,9,13,14,21,24,25,27,28,35,39,42
12	1/12 – 5/12	Quiz 2 (10%) CHAPTER 4: THE DERIVATIVE IN GRAPHING AND APPLICATIONS 4.1. Analysis of Functions I: Increase, Decrease, and Concavity	Ex. 4.1: 15,16,19,20,33,34,35,36,37,38
13	8/12 – 12/12	4.2. Analysis of Functions II: Relative Extrema. Maxima and Minima. Graphing Polynomials	Ex. 4.2: 7,8,33,34,35,36,37,39,45,47,57
14	15/12 – 19/12	4.3. Analysis of Functions III: Rational Functions. Cusps and Vertical Tangents	Ex. 4.3: 1,2,3,5,9,13
15	22/12 – 26/12	4.4. Absolute Maxima and Minima 4.5. Applied Maximum and Minimum Problems	Ex. 4.4: 7,8,9,10,13,14,21,22,23,24,25,27,28 Ex. 4.5: 3,4,5,6,9,18,23,37
16	29/12 – 3/1	4.6. Rectilinear Motion 4.7. Newton's Method 4.8. Rolle's Theorem. Mean-Value Theorem	
17 18	5/1 – 15/1	Final Exam (40%)	Topics of weeks 1-16

Jubail University College Policies	
Attendance	1. Attending at punctual time. Present otherwise the student is absent. 2. Late attendance 0 – < 5 minutes: is late 3. Late ≥ 5 minutes: is absent Notes: (i) Every 3 lates are counted as 1 absent (ii) Every $\frac{3}{15} \times$ total semester contact hours + 1 is DN
Grading	1. Quality point: is the result of multiplying the credit hours by the grading points. 1. Semester GPA: is the result of dividing total quality points achieved in all courses at that semester by total graded credit hours of all courses in that semester. 2. Cumulative GPA in a semester: is the sum of total quality points achieved in all courses up to that semester divided by the total credit hours graded for all courses up to that semester