Islamic University of Madinah
Faculty of Science
Department of Mathematics

SYLLABUS AND CONTENTS OF CALCULUS I (MATH 3111)

First Semester, 1447

Course Name: Calculus I
Credit Hours: 3 hours
Course Code: Matt 3111
Actual Hours: 3 hours

Textbook:

J. Stewart, Calculus: Early Transcendentals; Publisher, Cengage Learning; 8th edition (February 4, 2015); Language, English; Hardcover, 1368 pages; ISBN-10, 1285741552.

References:

Jon Rogawski and Colin Adams, Calculus: Early Transcendentals, 3rd Ed., Macmillan Education, 2015.

Grading: The evaluation of the students will be continuous during the course and depends on the following:

Assessment	Points	Date (**Including Vacations**)
First Midterm Exam	20	Week 7
Second Midterm Exam	20	Week 13
4 HomeWorks	10	Weeks 4, 9, 12, 14
3 Quizzes	10	Weeks 4, 9, 12
Final Exam	40	TBA

1. يسجل الغياب الكترونياً من اليوم الأول في الفصل الدراسي إلى نهاية الفصل.
2. يحرم الطالب من المقرر إذا تجاوز عدد ساعات الغياب نسبة 25% من ساعات الحضور.

Schedule of the lectures, homework assignments, quizzes, and exams:

Week	Date	Section	Title	Examples	Exercises
1	Aug. 24–28	1.1	Functions (P.9)	Examples 1,2,3,6,7,8,11 + Extra problems	**P.19**:3,4,7,8,9,10,31,32,33,37,41,43,73,74,75,76, 77.
2	Aug. 31 – Sep. 4	1.2	Functions and Models (P. 23)	Example 6 + Extra problems	**P. 33**: 1,2.
		1.3	New Functions from Old Functions (P.36)	Examples 1,2,3,6,7,8,9 + Extra problems	**P.42**: 9,10,11,14,15,17, 20,21,31,33,35,37,39,43,44,46,47,48.
3	Sep. 07–11	1.4	Exponential Functions (P.45)	Examples 1,4 + Extra problems	**P.53**:1,4,7,8,11,15,16,19, 20.
		1.5	Inverse Functions and Logarithms (P.55)	All Examples + Extra problems	**P.66**:6,7,8,9,10,11,12,17, 18,2123,25,35,36,37,51,52,53,69,70,71.
4	Sep. 14–18	2.2	The limit of a Function (P. 83) HW 1 + Quiz 1	All Examples + Extra problems	**P. 92**: 4,5,6,7,8,9,11,12.
		2.3	Calculating Limits Using the Limits Laws (P. 95)	All except Ex. 10 + Extra problems	**P. 102**: 1,2, odd No. from 11 to 31+36,37,38, 39,40,49,50,51,52.
5	Sep. 21–25	2.3	Calculating Limits Using the Limits Laws (P. 95)	All except Ex. 10 + Extra problems	**P. 102**: 1,2, odd No. from 11 to 31+36,37,38, 39,40,49,50,51,52.
		23–9–2025 اجازة اليوم الوطني الثلاثاء National Day holiday Tuesday 23–9–2025			
6	Sep. 28– Oct. 2	2.5	Continuity (P.114)	Examples 2 (b and c) 10+ Exer. 21,40,43,45 + Extra problems	**P. 124** 18,19,20,21,22,25,27,29,31,39,40,41,42,43,45,46,53 ,54,55, 56, 57, 58
7	Oct. 05– 09	**First Midterm Exam**			
		2.6	Limits at Infinity, Horizontal Asymptotes (P.126)	Examples 2,3,4, 5,6,7,9,10,11+ Exer. 48,52 + Extra problems	**P. 137**: Odd No. from 15 to 39 + 47,48,49,52.
8	Oct. 12–16	2.7	Derivatives and Rates of Change (P. 140) HW 2 + Quiz 2	Examples 1,2,4,5 + Extra problems	**P. 148**: 5,6,7,31,32,33
		2.8	The Derivatives as a Function (P. 152)	Examples 2(a),3,	**P. 160**: 21,23,25,27,29,31

				4,5 + Extra problems	
9	Oct. 19–23	3.1	Derivatives of polynomials and Exponential Function (p.172)	Examples 1,2,3, 4,5,6,8,9 + Extra problems	**P. 180**: All from 3 to 37 + 47,48
		3.2	The Product and Quotient Rules (P. 185)	All Examples + Extra problems	**P. 188**: All from 3 to 34
10	Oct. 26–30	3.3	Derivatives of Trigonometric Function (190)	Examples 1,2,5, 6 + Extra problems	**P. 196**: All from 1 to 19 + 21,22,23,24,39,41,43,44,45.
		3.4	The Chain Rule (P. 197)	All Examples + Extra problems	**P. 204**: All from 7 to 54
11	Nov. 02–06	3.5	Implicit Differentiation (P. 208) HW 3	All Examples + Extra problems	**P. 215**: All from 5 to 22 + All from 25 to 28 + All from 49 to 58.
		3.6	Derivatives of Logarithmic Functions (P. 217)	All Examples + Extra problems	**P. 223**: All from 2 to 15 + 23,24,26,31,32,33,34 + All from 39 to 50.
12	Nov. 09–13	3.11	Hyperbolic Function (P. 254)	All Examples + Extra problems	**P. 264**: All from 1 to 19 + All from 30 to 43.
		4.1	Maximum and Minimum Values (P. 276)	From 1 to 8. + Extra problems	**P. 283**: All from 29 to 33 + All from 47 to 51.
13	Nov. 16–20	**Second Midterm Exam**			
		4.2	The MVT (P.287) HW 4 + Quiz 3	Exer. 5,11 + Extra problems	**P. 291**: 5,6,8,11,12,14.
14	Nov. 23–27	4.3	How Derivatives Affect the Shape of Graph (P. 293)	Examples 1,2, 6 + Extra problems	**P. 300**: 9,10,11,19,37,38, 39,40,42.
		4.4	Indeterminate forms and L'Hospital's Rule (P. 304)	All Examples + Extra problems	**P. 311** Odd No. from 9 to 35 + Odd No. from 57 to 67.
15	Nov. 30–Dec. 04	Review Sessions			
The final exams: 07/12/2025 to 25/12/2025					