Course Specifications

Course Title:	Mathematics
Course Code:	1104102
Program:	Bachelor of Medicine (Arar)
Department:	Mathematics
College:	Sciences
Institution:	Northern Border University

Table of Contents

A. Course Identification

1. Credit hours: 3	

2. Course type

a. University ☐ College ■ Department ☐ Others ☐

b. Required ■ Elective ☐

3. Level/year at which this course is offered: 1st Year /1st Semester

4. Pre-requisites for this course (if any):

5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	45
2	Laboratory/Studio	
3	Tutorial	
4	Other s (specify)	
	Total	45
Other Learning Hours *		
1	Study	30
2	Assignments	20
3	Library	18.5
4	Projects/Research Essays/Theses	0
5	Other s(specify) Quiz	2
	Total	70.5

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description :
This course is considered as an introductory calculus course within a context suited for students studying life sciences.
2. Course Main Objective :
By the end of this course the student will be able to perform basic functions operations, interpret classical techniques of differentiation to study variations of functions and discuss basic techniques of integration with application to problems in the life sciences such as drug concentration blood flow, prenatal development and epidemics.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge**	
1.1	Identify the concepts and properties of functions.	K1
1.2	Be aware of fundamental rules of differentiations and integrals.	K2
2	**Skills**	
2.1	Apply rules of derivatives and integrals to some models in the life sciences.	S1
3	**Competence**	

C. Course Content

No	List of Topics	Contact Hours
1	Precalculus, functions.	15
2	Limits and continuity of a functions.	6
3	Derivatives and some rules for differentiation.	9
4	Some applications of differentiations in some life sciences models.	6
5	Indefinite Integrals and some applications in some life sciences models.	9
Total		**45**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	Identify the concepts and properties of functions.	1. Class /Group discussion 2. Group work/ Student-led learning 3. Brain storming 4. Observations 5. Library reading 6. Self-learning. 7. Collaborative learning.	1. MCQ - Multiple Choice Question 2. EMI - Extended Matching Item 3. SAQ - Short Answer Question 4. Short assignments or reports 5. Oral Question 6. Essay Question

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Be aware of fundamental rules of differentiations and integrals.	1. Class /Group discussion 2. Group work/ Student-led learning 3. Brain storming 4. Observations 5. Library reading 6. Self-learning. 7. Collaborative learning.	1. MCQ - Multiple Choice Question 2. EMI - Extended Matching Item 3. SAQ - Short Answer Question 4. Short assignments or reports 5. Essay Question
2.0	**Skills**		
2.1	Apply rules of derivatives and integrals to some models in the life sciences.	1. Class /Group discussion 2. Group work/ Student-led learning 3. Brain storming 4. Observations 5. Library reading 6. Self-learning. 7. Collaborative learning.	1. MCQ - Multiple Choice Question 2. EMI - Extended Matching Item 3. SAQ - Short Answer Question 4. Short assignments or reports 5. Structured Scenarios 6. Essay Question
3.0	**Competence**		

2. Assessment Tasks for Students

#	Assessment task *	Week Due	Percentage of Total Assessment Score
1	Homework 1	4	1.5
2	Quiz 1 (written test)	5	5
3	1st Periodic Exam (written test)	6-7	20
4	Homework 2	8	1.5
5	Quiz ٢ (written test)	9	5
6	2nd Periodic Exam (written test)	١٠-11	20
7	Homework 3	13	2
8	Participation	14	5
٩	Final Exam (written test)	16-17	40
١٠	Total		100

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- ➢ Upon admission in the program, each student is assigned to an academic advisor how provides guidance, career advices and general counseling to help him overcoming any academic difficulties.
- ➢ The student has not less than three appointments with his academic advisor during the semester, the first is upon registration, the second is after the first mid-term exam and the last is before the final exam.
- ➢ Any teaching staff is asked to post his guidance hours; at least three hours in different days during the week.
- ➢ The academic advisor keeps a folder that contains the personal information file, the schedule, the transcripts and the study plan for each student in charge.
- ➢ The teaching staff member takes into account the needs of both low achievers' and talented students during their lectures and office hours.

F. Learning Resources   and Facilities

1. Learning Resources

Required Textbooks	Applied calculus for the Life and Social Sciences, by Ron Larson, Houghton Mifflin Harcourt,2009.
Essential References Materials	Mathematics for the life Sciences, by Glenn Ledder, Springer 2013.
Electronic Materials	Digital Library of the Northern Border University https://nbu.edu.sa/EN/E-library/Pages/default.aspx
Other Learning Material s	Authorized books are provided in local libraries and university library

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms with sufficient numbers of seats depending on the number of enrolled students.
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board data show
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Printer, Photocopier, Papers A4, Desktop Computer, phone extension, whiteboard markers of different colors, a wiper for whiteboard

G. Course Quality Evaluation

Evaluation Areas/ Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Student	Indirect
	Faculty	Direct / Indirect
	Program Leaders	Indirect
Effectiveness of assessment	Student	Indirect
	Faculty	Direct
	Peer Reviewer	Direct
	Program Leaders	Direct / Indirect
Extent of achievement of course learning outcomes	Faculty	Direct
Quality of learning resources	Student	Indirect
	Faculty	Direct

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	