

المملكة العربية السعودية وزارة التعليم العالي جامعة المجمعة كلية العلوم بالزلفي قسم الرياضيات

COURSE CLASSIFICATION FORM

Course Number/Name		Math483 Real analysi	is 2
Prepared by		Dr. Mohammed Moham	nmed Khalaf
Program Learning Outcomes	Levels* (0,1,2, 3,4,5)	Relevant Activities	Assessment Methods/Metrics
a1. Apply fundamentals and concepts of mathematics.	5	- Lectures - assignments	• 3 Midterm and final exam • Home work
a2. Apply fundamentals and concepts General sciences and Computer skills.	3	- assignments on logic statements	1 Midterm and final examHome work
a3. Realize Social and ethical	0		•
b1. Read and construct mathematical arguments and proofs.	4	- Lectures - assignments	Home work
b2. Apply critical thinking skills to solve problems that can be modeled mathematically.	5	LecturesassignmentsOral discussion	• 3 Midterm and final exam+ Home work
c1. Work independently and within a team	3	Divided students into groups and using oral discussion with homework	Home work
c2. Bear responsibility for different situations.	2		• Quizzes
c3. Realize codes of ethics and their importance.	0		
d1. Communicate a depth and breadth of mathematical knowledge, both orally and in writing.	4	LecturesassignmentsOral discussion	 3 Midterm + final exam Home work Quizzes
d2. Ability to Organize, connect and communicate mathematical and algorithmic ideas.	4	- Lectures - assignments	 Home work Quizzes
d3. Critically interpret numerical and graphical data.	3	- assignments on information data and represented data	Home work Quizzes
e1. Use computer and its applications as an office tool	3	- assignments on Logical expression	Home work Quizzes

^{*} Please mark (or type) High (5), Medium-High (4), Medium (3), Low-Medium (2), Low (1) or Not At All (0) indicating the level to which you believe, as an instructor, the students have achieved these outcomes in this course.



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Course Objectives and Outcomes

Course Number: Math 483 Course Name: Real analysis 2

Prepared by: Dr. Mohammed Khalaf

Table 1: Relationship of course objectives/outcomes with PLO and ASIIN Criteria

Course Objectives:	Course Outcomes:	ASIIN	PLO
Have the knowledge of Definition of Riemann integral- Darboux theorem and Riemann	Define and recognize the Definition of Riemann integral- Darboux theorem and Riemann sums - Properties and the principle theorem in calculus	a, b, e, m	
sums - Properties and the principle	Improve and outline the logical thinking.	b, c	
theorem in calculus	Illustrate how to communicating with: Peers, Lecturers and Community.	l, n	
Have the knowledge of Series of functions- Pointwice convergence	Define and recognize Series of functions- Pointwice convergence and uniform convergence Shown the ability of working independently and	a, b, c, g, m, j	
and uniform convergence	with groups.	n	
	Illustrate how take up responsibility.	l, n	
Studying the Algebra and segma – algebra (sigma algebra)- Finite additivity and countable additivity- Main	Define and recognize Algebra and segma – algebra (sigma algebra)- Finite additivity and countable additivity- Main extension theorem	a, b, f, h	
extension theorem	ability to write Mathematical equations in a correct mathematical way	a, j, g	
Studying the outer measure- Measurable sets -	Define and recognize outer measure- Measurable sets - Measure - Lebesgue measure and its properties	a, c, h	
Measure - Lebesgue measure and its properties	Appraise how to Use the computer skills and library.	d, h	
measure and its properties	Illustrate how to Search the internet and using software programs to deal with problems	d, h	
Have the knowledge of Simple functions- Measurable functions-	Define and recognize Simple functions- Measurable functions- Lebesgue integral-	a, e, i	
Lebesgue integral-	interpret how to Know the Measurable functions- Lebesgue integral using the internet	k, h, g	
Studying the Theorems of convergence- The relation	Define and recognize the Theorems of convergence- The relation between Lebesgue and Riemann	a, i	

Course Objectives and Outcomes

between Lebesgue and Riemann integral .	interpret how to Know the Lebesgue and Riemann integral .	h, k	
Studying the Finite additivity and	Define and recognize Finite additivity and countable additivity	a, i	
countable additivity	interpret how to Know Finite additivity and countable additivity .using the internet	k, h, g	

Table 2: Methods of assessment of course syllabus

TA/Grader Assessment Number/Type Instructor Peer/Self Method Assessed Assessed Assessed Homework 5 homework assignments Mid Terms/Final Exams 2 mid-term; 1 final exam Quizzes One biweekly X 1-2 wks 3-4 wks 1/2 sem Full sem **Individual Projects** 1-2 wks Team Projects 3-4 wks 1/2 sem Full sem \mathbf{X} \mathbf{X} Lab Assignments Computer Assignments Computer Tools Used Oral Presentations one Written Reports one Other Design project (project binder)

Outcome of ASIIN

- a Graduates have sound mathematical knowledge. They have a profound overview of the contents of fundamental mathematical disciplines and are able to identify their correlations.
- b Graduates are able to recognise mathematics-related problems, assess their solvability and solve them within a specified time frame.
- c Graduates have a basic ability to work in a scientific way. They are in particular able to formulate mathematical hypotheses and have an understanding of how such hypotheses can be verified or falsified using mathematical methods.
- **d** Graduates can flexibly apply mathematical methods of fundamental component areas of mathematics and are able to transfer the findings obtained to other component areas or applications.
- e Graduates have abstraction ability and are able to recognise analogies and basic patterns
- f Graduates are able to think in a conceptual, analytical and logical manner.
- g Graduates have an extensive comprehension of the significance of mathematical modelling. Are able to create mathematical models for mathematical problems as well as for problems in other areas of science or everyday life, and have a selection of problem solving strategies at their disposal.
- h Graduates can use basic methods of computer-aided simulation, mathematical software and programming to solve mathematical problems
- i Graduates are in a position to solve more extensive mathematical
- j Graduates can classify, recognise, formulate and solve mathematics-related problems
- **k** Graduates use electronic media competently
- I Graduates can implement lifelong learning strategies. A prerequisite for this is that the students are per-severing and that they have developed persistence.
- m Graduates can recognise, formulate, classify and solve problems in a mathematical context
- Graduates can communicate, possibly also in a foreign language, and contribute their work effectively in teams



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Instructor Course Evaluation Form

The purpose of this evaluation is to collect instructor feedback for improving this course and the Mathematics program. Information will also be used for program accreditation purposes.

I. Program Learning Outcomes Evaluations

Course Number/Name		83 real analysis 2	Semester	First 143			34/1435		
Instructor	Dr. mo	hammed . khalaf							
The course listed above is designed for students to achieve the following outcomes Low, Low- Medium, Medium, High or High level.							All	l ,	
Please mark (or type) High (5), Medium-High (4), Medium (3), Low-Medium (2), Low (1) or Not At All (0) indicating the level to which you believe, as an instructor, the students have achieved these outcomes in this course.									
Program Learning Outo	comes	Relevant Activit	ies	5	4	3	2	1	0
a1. Apply fundamentals and co of mathematics.	oncepts	- Lectures - assignments		5					
a2. Apply fundamentals and co General sciences and Compute		- assignments on logic statement	S			3			
a3. Realize Social and ethical	values.								0
b1. Read and construct mather arguments and proofs.	matical	- Lectures - assignments			4				
b2. Apply critical thinking ski solve problems that can be mo mathematically.		LecturesassignmentsOral discussion		5					
c1. Work independently and with team	nin a	Divided students into groups ar discussion with homework	nd using oral			3			
c2. Bear responsibility for diffisituations.	ferent						2		
c3. Realize codes of ethics and importance.	d their								0
d1. Communicate a depth and of mathematical knowledge, b orally and in writing.	oth	- Lectures - assignments - Oral discussion			4				
d2. Ability to Organize, conne communicate mathematical an algorithmic ideas.		- Lectures - assignments			4				
d3. Critically interpret numeric graphical data.	cal and	- assignments on information de represented data				3			
e1. Use computer and its applications as an office too	ol	- assignments on Logical expre	ssion			3			

II. Catalog Description, and Course Prerequisites Evaluations:

Based on your experiences in the course, please respond by circling the most appropriate number. Circle N/A for items that are not applicable, or if you have no opinion.

number. Circle N/A for items that are not applicable, or if you have no opinion.								
Catalog	Theorem in calculus. Series of t	Theorem in calculus. Series of functions- Pointwice convergence and						
Description	uniform convergence- Algebra							
1434-1435	1 1 1 (1 1	obro)						
	Definition of Riemann integral-	- Darbou	x theo	rem a	ınd Ri	emann		
	sums - Properties and the princi	nle						
	sams Troperties and the princi	pic						
	T: 2 1122 2 1 4 11	1.1575 - 57				. 1		
	Finite additivity and countable	-						
	and outer measure- Measurable	sets - Mo	easure	e - Let	oesgu	e measi	ıre	
	and its properties-							
	Simple functions- Measurable f	inctions.	. Lebe	esome	integr	al-		
	*	unctions	Leoc	sgue	megi	uı		
	Theorems of convergence							
	The miletian between Laborator	1 D:			- 1			
	The relation between Lebesgue	and Rier	nann	integr	ai.			
C	DMTH 112 + DMTH127	G: 1.4) (F	C/	1 4			
Course	PMTH 112 + PMTH127	Circle (ree;		
Prerequisites:		1=Stroi					3 774	
	t the catalog description (above) is	(5)	4	3	2	1	N/A	
accurate for this cours		_	(4)	-			77/4	
	he course prerequisites (above) are	5	(4)	3	2	1	N/A	
appropriate for this cours								
	ny prerequisites you believe are not							
appropriate for this co	se.							
		1						

III. Textbook(s) and/or Lab Manuals (if applicable) Evaluations:

Textbook(s) and/or Lab Manuals (if applicable):	[1] H. L. Royden: Real Analysis, 3rd edition, Macmillan Publishing Co., Inc. New York, 1988 [2] D. L. Cohn: Measure theory, Birkhauser Verlag AG, 1993. [3] S. J. Taylor: Introduction to Measure & Integration, Cambridge University Press, 1973.	Circle (1=Stron				gree;	
3a. In general, do you believe this to be an appropriate textbook for this course?			4	3	2	1	N/A

Instructor Course Evaluation Form

3b. Was the organization of the textbook appropriate for this course?	5	(4)	3	2	1	N/A
3c. Was the level of the textbook appropriate for this course?	5	(4)	3	2	1	N/A

IV. Computer usage (if applicable) Evaluations:

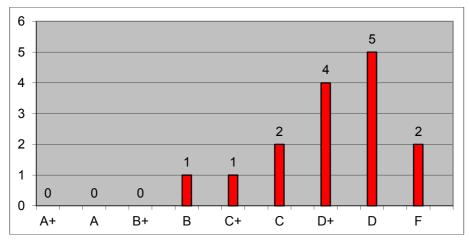
Computer usage (if applicable):	(5:	=Stron	gly Ag	e One ree; 1= gree)	=Strong	ly
5a. Was the use of computer well integrated with the course?	5	4	(3)	2	1	N/A
5b. Was the computer lab adequately equipped with well-maintained and updated computers?		4	3	2	(1)	N/A
5c. Was the computer lab equipped with sufficient number of computers?	5	5	5	2	1	(N/A)
5d. Were the special software packages (MATLAB, SPSS, C+, FORTRAN, etc) available and accessible?	5	4	3	2	1	(N/A)
5e. Was adequate technical support available when needed?	5	4	3	2	1	(N/A)

جامعة المجمعة كلية العلوم بالزلفي

نموذج تحويل العلامات النهائي من منوي الى أحرف لطلبة البكالوريوس

	١٤٣٥/١ الترم الثاني	الثاني ٤٣٤	الفصل الدراسي
Math 483	رقم المادة	الرياضيات	القسم
التحليل الحقيقي ٢	اســـم المـــادة	د. محمد محمد خلف	استاذ المادة
0	عدد الطلبة الغائبين عن التهائي		عدد الطلبة المسجلين
2	عدد الطلبة الراسبين	13	عدد الطلبة النساجحين
F	العلامة الدنيا	2.37	متوسط الدرجات
86.67%	نسبة النجاح	В	الدرجة العليـــا

	Percentage	SUM	Count	ТО	From	Average
	0	0	0	100	95	A+
	0	0	0	94	90	Α
£	0	0	0	89	85	B+
Average	6.66666667	4	1	84	80	В
ege.	6.66666667	3.5	1	79	75	C+
(D	13.3333333	6	2	74	70	С
	26.6666667	10	4	69	65	D+
	33.3333333	10	5	64	60	D
	13.3333333	2	2	59	0	F
<u>2.37</u>	<u>100</u>	<u>35.5</u>	<u>15</u>		Т	otal Students



			~
	التقدير	العلامة	الرقم
	D	61	1
	F	43	2
	D+	66	3
	D	60	4
	D+	68	5
	D+	67	6
	С	70	7
	D	60	8
Ī	В	80	9
	C+	75	10
	D	60	11
	D	60	12
	F	39	13
	С	72	14
	D+	65	15



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Student Course Evaluation Form

The purpose of this evaluation is to collect instructor feedback for improving this course and the Mathematics program. Information will also be used for program accreditation purposes.

I. Program Learning Outcomes Evaluations

Course Number/Name	Math 483 real analysis 2	Semester	Second 1434/14					35		
Instructor	Dr. mohammed khalaf									
Student Name		Student ID								
The course listed above is de Low, Low- Medium, Mediur	at a	Not	t At	All	l,					
Please mark (or type) High (5), Medium-High (4), Medium (3), Low-Medium (2), Low (1) or Not At All (0) indicating the level to which you believe, as an instructor, the students have achieved these outcomes in this course.										
Prog	ram Learning Outcomes		5	4	3	2	1	0		
a1. Apply fundamentals an	d concepts of mathematics.									
a2. Apply fundamentals an	d concepts General sciences and C	Computer skills.								
a3. Realize Social and ethical values.										
b1. Read and construct ma	thematical arguments and proofs.									
b2. Apply critical thinking mathematically.	skills to solve problems that can b	e modeled								
c1. Work independently and	within a team									
c2. Bear responsibility for	different situations.									
c3. Realize codes of ethics	and their importance.									
d1. Communicate a depth and breadth of mathematical knowledge, both orally and in writing.										
d2. Ability to Organize, connect and communicate mathematical and algorithmic ideas.										
d3. Critically interpret numerical and graphical data.										
e1. Use computer and its a	pplications as an office tool									

II. Catalog Description, and Course Prerequisites Evaluations:

Based on your experiences in the course, please respond by circling the most appropriate number. Circle N/A for items that are not applicable, or if you have no opinion.

Catalog Description 1434-1435	Theorem in calculus. Series of functions- Pointwice convergence and uniform convergence- Algebra and σ – algebra (sigma algebra)- Definition of Riemann integral – Darboux theorem and Riemann sums - Properties and the principle - Finite additivity and countable additivity- Main extension theorem - and outer measure- Measurable sets - Measure - Lebesgue measure and its properties- Simple functions- Measurable functions- Lebesgue integral - Theorems of convergence - The relation between Lebesgue and Riemann integral .								
Course Prerequisites:	PMTH 112 + PMTH127	Circle One (5=Strongly Agree; 1=Strongly disagree)							
2a. Do you believe that the catalog description (above) is accurate for this course?		5	4	3	2	1	N/A		
2b. Do you believe that the course prerequisites (above) are appropriate for this course?		5	4	3	2	1	N/A		
2c. If not, please list ar appropriate for this cou	ny prerequisites you believe are not urse.								

III. Textbook(s) and/or Lab Manuals (if applicable) Evaluations:

111. I CALDOOK(S) and	ioi Lab Manuais (ii applicabic) Evali	uations.					
Textbook(s) and/or Lab Manuals (if applicable):	[1] H. L. Royden: Real Analysis, 3rd edition, Macmillan Publishing Co., Inc. New York, 1988 [2] D. L. Cohn: Measure theory, Birkhauser Verlag AG, 1993. [3] S. J. Taylor: Introduction to Measure & Integration, Cambridge University Press, 1973.	Circle One (5=Strongly Agree; 1=Strongly Disagree)					
3a. In general, do you believe this to be an appropriate textbook for this course?		5	4	3	2	1	N/A
3b. Was the organization of the textbook appropriate for this course?		5	4	3	2	1	N/A
3c. Was the level of the textbook appropriate for this course?		5	4	3	2	1	N/A

IV. Computer usage (if applicable) Evaluations:

Computer usage (if applicable):	Circle One (5=Strongly Agree; 1=Strongly Disagree)					
4a. Was the use of computer well integrated with the course?		4	3	2	1	N/A
4b. Was the computer lab adequately equipped with well-maintained and updated computers?		4	3	2	1	N/A
4c. Was the computer lab equipped with sufficient number of computers?		5	5	2	1	N/A

Student Course Evaluation Form

4d. Were the special software packages (MATLAB, SPSS, C+, FORTRAN, etc) available and accessible?	5	4	3	2	1	N/A
4e. Was adequate technical support available when needed?	5	4	3	2	1	N/A