

COURSE CLASSIFICATION FORM

Course Number/Name		Math 482 Introduction to Functional Analysis	
Prepared by		Prof. Dr. Adel Zaki	
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.	4	- assignments on logic statements	• 1 Midterm and final exam • Home work
a3. Realize Social and ethical values.	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	- Lectures - assignments - Oral 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	- Lectures - assignments - Oral 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.	2	- assignments on information data and represented data	• Home work • Quizzes
e1. Use computer and its applications as an office tool	2	- 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.

Course Objectives and Outcomes

Course Number: Math 482
Analysis

Course Name: Introduction to Functional

Prepared by: Prof/ Dr. Adel Zaki

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

Course Objectives:	Course Outcomes:	ASIIN	PLO
Having the knowledge of basic properties metric spaces .	Define and recognize the basic properties of metric spaces	a, b, e, m	
	Improve and outline the logical thinking.	b, c	
	Illustrate how to communicating with: Peers, Lecturers and Community.	l, n	
Studying the notion of normed spaces .	Define and recognize normed spaces	a, b, c, g, m, j	
	Shown the ability of working independently and with groups.	n	
	Illustrate how take up responsibility.	l, n	
Studying sequences and their convergent in metric and normed spaces	Define and recognize the convergence of sequences in metric and normed spaces	a, b, f, h	
	ability to solve different problems concerning converging sequences in both spaces	a, j, g	
Studying Inner product spaces .	Define and recognize the basic facts on Inner product spaces	a, c, h	
	Appraise how to Use the computer skills and library.	d, h	
	Illustrate how to Search the internet to search for more information on Inner product spaces	d, h	
Having the knowledge of Linear operators and functionals on normed spaces .	Define and recognize the concept of linear operators and functionals on normed spaces	a, e, i	
	interpret how to Know more about linear operators and functionals the using the internet	k, h, g	
Studying the related theorems on normed and Hilbert spaces .	Recognize related theorems in both spaces	a, i	
	interpret how to Know more about the applications of these theorems using the internet	h, k	

Course Objectives and Outcomes

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Table 2: Methods of assessment of course syllabus

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

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 recognize 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 recognize 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 modeling. 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, recognize, formulate and solve mathematics-related problems
k	Graduates use electronic media competently
l	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 recognize, formulate, classify and solve problems in a mathematical context
n	Graduates can communicate, possibly also in a foreign language, and contribute their work effectively in teams

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's 482	Semester	second	1434/1435			
Instructor	Dr. Adel Zaki						
Student Name	-----	Student ID	-----	-----			
The course listed above is designed for students to achieve the following outcomes at a Not At All, Low, Low- Medium, Medium, Medium-High or High level.							
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 Outcomes		5	4	3	2	1	0
a1. Apply fundamentals and concepts of mathematics.							
a2. Apply fundamentals and concepts General sciences and Computer skills.							
a3. Realize Social and ethical values.							
b1. Read and construct mathematical arguments and proofs.							
b2. Apply critical thinking skills to solve problems that can be modeled mathematically.							
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 applications as an office tool							

Instructor Course Evaluation Form

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	<ul style="list-style-type: none"> • A range of topics are treated each at an elementary level to give a foundation of basic definitions, theorems and computational techniques. • A rigorous approach is expected. • Introducing different types of spaces such as Metric spaces-Normed spaces-inner product spaces. • Sequences in metric spaces . • Linear operators in normed spaces . • Related and basic theorems in normed and Hilbert spaces . • 						
Course Prerequisites:	<table border="1"> <tr> <td>Maths 471</td> <td>Circle One (5=Strongly Agree; 1=Strongly disagree)</td> </tr> </table>	Maths 471	Circle One (5=Strongly Agree; 1=Strongly disagree)				
Maths 471	Circle One (5=Strongly Agree; 1=Strongly disagree)						
2a. Do you believe that the catalog description (above) is accurate for this course?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A
5	4	3	2	1	N/A		
2b. Do you believe that the course prerequisites (above) are appropriate for this course?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A
5	4	3	2	1	N/A		
2c. If not, please list any prerequisites you believe are not appropriate for this course.							

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

Textbook(s) and/or Lab Manuals (if applicable):	<ul style="list-style-type: none"> • D.C. Montgomery & G. C. Runger. Applied Statistics and Probability. 3rd edition.2003. • Probability and Statistics . Schaum's Outline Series. 	Circle One (5=Strongly Agree; 1=Strongly Disagree)						
3a. In general, do you believe this to be an appropriate textbook for this course?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			
3b. Was the organization of the textbook appropriate for this course?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			
3c. Was the level of the textbook appropriate for this course?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
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?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			
4b. Was the computer lab adequately equipped with well-maintained and updated computers?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			
4c. Was the computer lab equipped with sufficient number of computers?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			
4d. Were the special software packages (MATLAB, SPSS, C+, FORTRAN, etc) available and accessible?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			
4e. Was adequate technical support available when needed?	<table border="1"> <tr> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>N/A</td> </tr> </table>	5	4	3	2	1	N/A	
5	4	3	2	1	N/A			

Instructor Course Evaluation Form
