اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Research Project
Course Code:	Math 491
Program:	Bachelor of Science in Mathematics
Department:	Mathematics
College:	Science
Institution:	University of Tabuk

Table of Contents

A. Course Identification

1. Credit hours: 03 Hours/Week	

2. Course type: Theory

a. University ☐ College ☐ Department ☑ Others ☐

b. Required ☑ Elective ☐

3. Level/year at which this course is offered: L8/Y4

4. Pre-requisites for this course (if any)**:** None

5. Co-requisites for this course (if any)**:**
None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	45	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	45
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	45

B. Course Objectives and Learning Outcomes

1. Course Description

In this senior research projects students practice different techniques and principles of mathematics, submit a final project report and conduct an oral presentation.

2. Course Main Objective
- Students will be able to use library and other tools to carry out research project independently and in collaboration with others.
- Students will be able to report research findings.
- Students will be able to demonstrate an understanding of the research ethics.
- Students will be able to present mathematical concepts and theories effectively.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Students will demonstrate broad in-depth knowledge of analysis, algebra and applied mathematics theories, principles and concepts in related disciplines	K1
1.2	Students will demonstrate in-depth knowledge of mathematical techniques, processes, practices and conventions in multiple disciplines.	K2

	CLOs	Aligned PLOs
2	**Skills :**	
2.1	Students will be able to solve complex mathematical problems using analytical and numerical methods.	S1
2.2	Students will be able to demonstrate rigorous reasoning; critical thinking skills through proving mathematical theorems and problem solving.	S2
2.3	Students will be able to apply mathematical theories, techniques and concepts to mathematical and real-world problems.	S3
2.4	Students will be able to communicate mathematical ideas with clarity and coherence through written and oral presentations.	S4
2.5	Students will be able to solve mathematical problems using mathematical programming.	S5
3	**Values:**	
3.1	Students will perform term work, while committed to professional, academic values and ethics.	V1
3.2	Students will effectively plan for self-development and demonstrate responsibility through managing duties, time and participating in advancing the community.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to research work and offering various topics for the students to choose from.	3 Hrs
2	Putting a plan for the project.	3 Hrs
3	Training the students on summing up the required references and researches with the aid of the library and online websites.	3 Hrs
4	Training the student on how to look up references and research in order to obtain the information they need in their research work.	3 Hrs
5,6	Teaching the students the structure of a research work.	6 Hrs
7	Practicing writing introductions to a research work	3 Hrs
8	Discussing the summed up data.	3 Hrs
9,10	Solving the main problem of the research work.	6 Hrs
11,12	Training the students' on how to write references and how to refer to them in the research work	6 Hrs
13,14	Writing the research work and revising it to put it in its final form.	6 Hrs
15	Final discussion of the research work through a seminar held within the department.	3 Hrs
Total		**45 Hrs**

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 and Understanding**		
1.1	Students will demonstrate broad in-depth knowledge of analysis, algebra and applied mathematics theories, principles and concepts in related disciplines	Introducing new ideas through case study Lectures Class Discussions	-Assignments -Homework
1.2	Students will demonstrate in-depth knowledge of mathematical techniques, processes, practices and conventions in multiple disciplines.		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	**Skills**		
2.1	Students will be able to solve complex mathematical problems using analytical and numerical methods.	- Lectures - class discussion - Brainstorming	-Assignments -Homework -Presentation
2.2	Students will be able to demonstrate rigorous reasoning; critical thinking skills through proving mathematical theorems and problem solving.		
2.3	Students will be able to apply mathematical theories, techniques and concepts to mathematical and real-world problems.		
2.4	Students will be able to communicate mathematical ideas with clarity and coherence through written and oral presentations.		
2.5	Students will be able to solve mathematical problems using mathematical programming.		
3.0	**Values**		
3.1	Students will perform term work, while committed to professional, academic values and ethics.	-Assign tasks. -Group work	- Homework -Assignments -Class participation
3.2	Students will effectively plan for self-development and demonstrate responsibility through managing duties, time and participating in advancing the community.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	HomeWorks and other activities	6th week	25%
2	Writing the project	During semester	25%
4	Defense	At end of the Semester	50%

*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 :
3 office hours per week in the lecturer schedule.

F. Learning Resources and Facilities
1.Learning Resources

Required Textbooks	Depend on the subject of the research work
Essential References Materials	Depend on the subject of the research work
Electronic Materials	Depend on the subject of the research work

Other Learning Materials	Depend on the subject of the research work

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1.Lecture Room equipped with White Board, Overhead projector and internet connection. 2.Library 3.Computer lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	Projectors
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Direct and Indirect
Extent of achievement of course learning outcomes	Teachers	Direct
Quality of learning resources	Students	Indirect

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	The Curriculum committee
Reference No.	
Date	25/08/2021