MA4555: SUPERVISED INDIVIDUAL RESEARCH

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Supervised Individual Research

Subject Code
MA - Mathematics
Course Number
4555

Academic Unit
Mathematics (MA)

College/School
College of Science (SI)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
MA2503 Linear Algebra / MA1503 Linear Algebra with Applications, and MA2508 Multi-variable Calculus, and MA3511 Ordinary Differential Equations

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
MA4530 Project

Part II Course Details

Abstract

This course offers students an opportunity to deepen their understanding of specific mathematical topics, promoting the integration of insights gained during their undergraduate studies. It enhances their self-confidence, independence, and ability to apply analytical skills and knowledge to both theoretical and practical problems. Moreover, through this course, students gain experience in clearly communicating their research findings through written reports and oral presentations.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Conduct independent study and problem-solving.	20	x	x	
2	Apply knowledge from prior courses to analyze theoretical problems and utilize mathematical modeling to solve practical issues.	20	x	x	
3	Demonstrate initiative, innovative thinking, and critical analysis when solving problems and evaluating methods and results.	20	x	x	x
4	Write well-structured reports and proficiently communicate methodologies and findings.	40	x	x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Consultation	Learning through consultation helps students identify appropriate research themes and acquire knowledge and techniques on specific topics from their supervisors, as well as from suggested materials such as advanced mathematical monographs or research papers.	1, 2, 3, 4	9 hours in total

2	Individual work	Engaging in individual work helps students independently acquire the knowledge and skills necessary for project completion, allowing them to carry out associated tasks with diligence.	1, 2, 3, 4	30 hours in total

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Continuous progress	1, 2, 3, 4	30	Student progress is regularly monitored to identify any issues encountered during studies and to ensure timely and satisfactory completion of the project.	Yes
2	Report	1, 2, 3, 4	40	The report should incorporate the student's own understaning and discoveries, presenting a systematic and critical review of literature. Additionally, the student should present materials cohesively, including all necessary references.	Yes
3	Oral presentation	1, 2, 3, 4	30	Each student is evaluated on their proficiency in effectively communicating project objectives, methodologies, and investigation findings.	Yes

Continuous Assessment (%)

100

Additional Information for ATs

100% coursework assessment

(based on continuous progress, report and oral presentation)

Assessment Rubrics (AR)

Assessment Task
1. Continuous progress

Criterion
Research skills, problem solving skills

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
2. Report

Criterion
Ability to engage in self-directed learning and effectively explain key findings, theories, and concepts related to the subject of study.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
3. Oral Presentation

Criterion
Oral presentation skills, along with the ability to answer questions, and defend one’ s own ideas and position.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus
Varies depending on the chosen project topic.

Reading List

Compulsory Readings

	Title
1	The reading list will be provided by each supervisor. In each project proposal, some key references are provided by supervisors, which can serve as reading lists.

Additional Readings

	Title
1	Nil