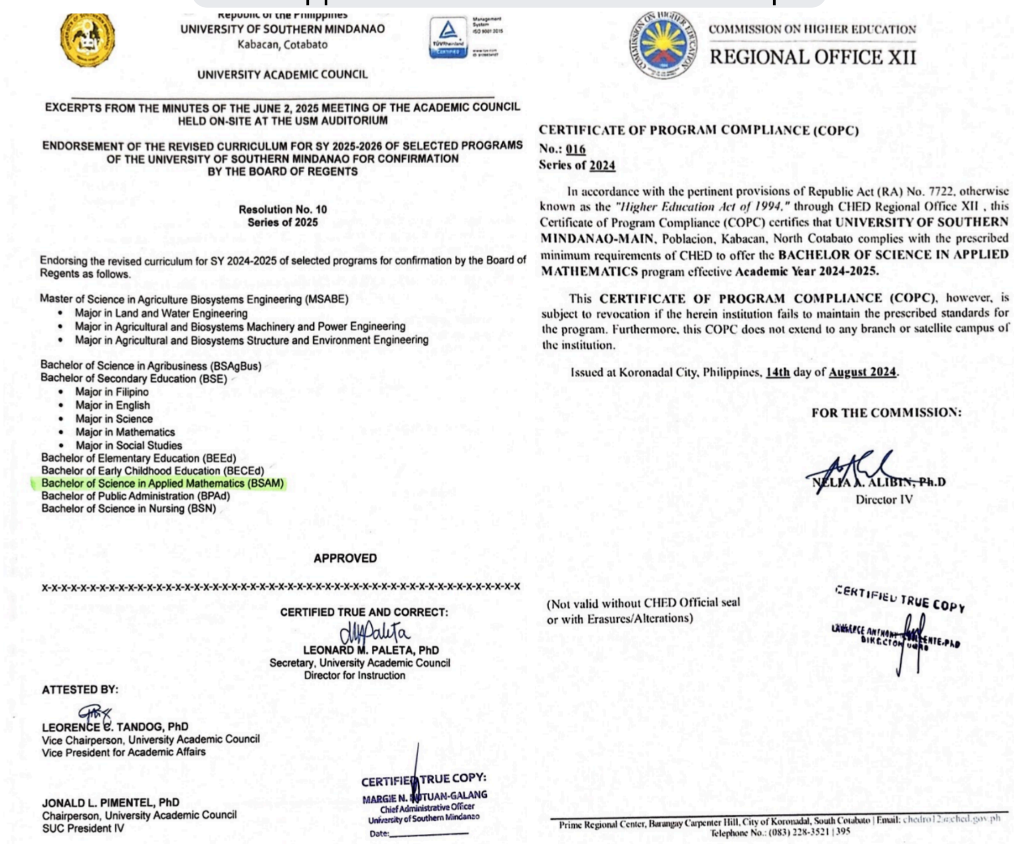
AREA III – Curriculum and Instruction

Parameter A – CURRICULUM AND PROGRAM OF STUDIES

1. SYSTEM-INPUTS AND PROCESSES

- Present the BOR/BOT approved Curriculum and /or Program of Studies

BS Applied Mathematics Curriculum.pdf



Republic of the Philippines
UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Cotabato

UNIVERSITY ACADEMIC COUNCIL

EXCERPTS FROM THE MINUTES OF THE JUNE 2, 2025 MEETING OF THE ACADEMIC COUNCIL HELD ON-SITE AT THE USM AUDITORIUM

ENDORSEMENT OF THE REVISED CURRICULUM FOR SY 2025-2026 OF SELECTED PROGRAMS OF THE UNIVERSITY OF SOUTHERN MINDANAO FOR CONFIRMATION BY THE BOARD OF REGENTS

Resolution No. 10
Series of 2025

Endorsing the revised curriculum for SY 2024-2025 of selected programs for confirmation by the Board of Regents as follows.

Master of Science in Agriculture Biosystems Engineering (MSABE)
- Major in Land and Water Engineering
- Major in Agricultural and Biosystems Machinery and Power Engineering
- Major in Agricultural and Biosystems Structure and Environment Engineering

Bachelor of Science in Agribusiness (BSAgBus)
Bachelor of Secondary Education (BSE)
- Major in Filipino
- Major in English
- Major in Science
- Major in Mathematics
- Major in Social Studies

Bachelor of Elementary Education (BEEd)
Bachelor of Early Childhood Education (BECEd)
Bachelor of Science in Applied Mathematics (BSAM)
Bachelor of Public Administration (BPAd)
Bachelor of Science in Nursing (BSN)

APPROVED

x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x

CERTIFIED TRUE AND CORRECT:

LEONARD M. PALETA, PhD
Secretary, University Academic Council
Director for Instruction

ATTESTED BY:

LEORENCE C. TANDOG, PhD
Vice Chairperson, University Academic Council
Vice President for Academic Affairs

JONALD L. PIMENTEL, PhD
Chairperson, University Academic Council
SUC President IV

CERTIFIED TRUE COPY:
MARGIE N. TUAN-GALANG
Chief Administrative Officer
University of Southern Mindanao
Date:________

COMMISSION ON HIGHER EDUCATION
REGIONAL OFFICE XII

CERTIFICATE OF PROGRAM COMPLIANCE (COPC)
No.: 016
Series of 2024

In accordance with the pertinent provisions of Republic Act (RA) No. 7722, otherwise known as the *"Higher Education Act of 1994,"* through CHED Regional Office XII, this Certificate of Program Compliance (COPC) certifies that **UNIVERSITY OF SOUTHERN MINDANAO-MAIN**, Poblacion, Kabacan, North Cotabato complies with the prescribed minimum requirements of CHED to offer the **BACHELOR OF SCIENCE IN APPLIED MATHEMATICS** program effective **Academic Year 2024-2025.**

This **CERTIFICATE OF PROGRAM COMPLIANCE (COPC)**, however, is subject to revocation if the herein institution fails to maintain the prescribed standards for the program. Furthermore, this COPC does not extend to any branch or satellite campus of the institution.

Issued at Koronadal City, Philippines, 14th day of August 2024.

FOR THE COMMISSION:

NELIA A. ALIBIN, Ph.D
Director IV

(Not valid without CHED Official seal or with Erasures/Alterations)

CERTIFIED TRUE COPY

Prime Regional Center, Barangay Carpenter Hill, City of Koronadal, South Cotabato | Email: chedro12@ched.gov.ph
Telephone No.: (083) 228-3521 | 395

The Program under Survey

A.1. Description of the Program

Program: BS Applied Mathematics

Mathematics is often described as the science of patterns. Mathematicians seek to discover, analyze and classify patterns in both abstract objects and natural phenomena. The traditional domains of study are quantity (arithmetic), structure (algebra), space (geometry) and change (analysis). Mathematics offers distinctive and powerful modes of thought such as abstraction, generalization, deduction, inference, use of symbols and the axiomatic method. Mathematical truth is established through logical analysis and proof. As a universal discipline it is rich in both theory and applications.

Mathematics is used as an essential tool in many fields, including the natural sciences, engineering, medicine, finance and the social sciences. Apart from being the language of the physical sciences, mathematics shares much in common with the former, notably in the exploration of logical consequences of assumptions. Mathematics is also regarded as

an art, having an aesthetic and creative side. The special role of mathematics in education (being part of the curricula from primary school to college) is a consequence of its foundational nature and universal applicability.

Mathematicians engage in pure mathematics or mathematics for its own sake, without having, at least initially or intentionally, application or utility in mind. Applied mathematics, on the other hand, is the branch of mathematics concerned with application of mathematical theories and methods to other fields. Applied mathematicians are academics, researchers, or professionals who work on practical problems, often involving the formulation, analysis, and use of mathematical models. In turn, their work inspires and motivates new mathematical discoveries that may lead to the development of new mathematical disciplines, as in the case of operations research or game theory, or mathematics-based disciplines, such as statistics and finance. There is no clear line separating pure and applied mathematics.

The legacy of classical mathematical theory, discovery of modern mathematical theories and techniques, and emergence of efficient computing methods, robust symbolic mathematical software and powerful computers, have broadened the landscape of mathematics and have led to many advancements in mathematics and science in general.Mathematical theories and techniques have become essential in many areas, notably finance and the life sciences. Experimental and computational mathematics continue to grow in importance within mathematics. Computation, simulation and visualization are playing increasing roles in both science and mathematics. The overlap between applied mathematics and statistics and other decision sciences has become more significant, especially with the recognition of the stochastic nature of varied phenomena. Mathematical models and quantitative methods are increasingly being used in many fields, and new and powerful models are needed to address global problems and issues like climate change, disaster mitigation, risk management, food, water, and population.

Graduates of BS Applied Math often obtain jobs in education (teaching high school math courses or tertiary level elementary/service courses), statistics, actuarial science, operations research, risk management, business and economics, banking and finance, and computing and information technology.

Mathematics/ applied mathematics is closely related to the fields of statistics, physics, computer science, and engineering.

A.2. Objectives of the Program

The BS Applied Mathematics aims to:

1. provide students with substantial exposure to the breadth and depth of mathematics to cover courses in applied mathematics to prepare graduates to pursue higher studies or work in a variety of fields;
2. produce graduates who are equipped with problem solving, mathematical and critical thinking skills and are able to do research and perform jobs that require analytical thinking and quantitative skills; and
3. provide government units and industry with human resources who can perform jobs that require statistics, actuarial science, operation research, risk management, business and economics, banking and finance, and computing and information technology.

A.3. The Curriculum of the Program (showing subject distribution by school term and year level).

The four-year Bachelor of Science in Applied Mathematics (BSAM) program of the University of Southern Mindanao provides a strong foundation in mathematics, computing, and related disciplines. Its curriculum is organized by year level and semester to progressively develop students' analytical, computational, and problem-solving skills, preparing them for professional practice, research, and further studies.

4-Year Degree Program

1st YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath01	Calculus 1	4	0	4	
AMath04	Fundamentals of Computing 1	2	3	3	
GE 05	Purposive Communication	3	0	3	
GE02	Readings in Philippine History	3	0	3	
GE02	Readings in Philippine History	3	0	3	
GE04	Mathematics in the Modern World	3	0	3	
GE06	Art Appreciation	3	0	3	
PE01	PATHFit1: Movement Competency Training	2	0	2	
NSTP01	Civic Welfare Training Service 1 / Reserved Officers Training Corps 1	3	0	3	
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath02	Calculus 2	4	0	4	AMath01
AMath05	Fundamentals of Computing 2	2	3	3	AMath04
GESSP 01	Society and Culture	3	0	3	
AMath BioSci01	General Biology	3	3	3	
PhySci01 Lec	General Physics 1	3	0	3	AMath 01

PhyScio1 Lab 01	General Physics Lab 1	0	3	3	
GE 11	Literatures of the Philippines	3	0	3	
PE02	PATHFit2: Exercise-based Fitness Activities	2	0	2	PE01
NSTP02	Civic Welfare Training Service 2 / Reserved Officers Training Corps 2	3	0	3	NSTP01

2nd YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath03	Calculus III	4	0	4	AMath02
AMath07	Fundamental Concepts of Mathematics	3	0	3	
GE03	The Contemporary World	3	0	3	
GE10	Wika at Kultura sa Mapayapang Lipunan	3	0	3	
GE01	Understanding the Self	3	0	3	
GE 8	Ethics	3	0	3	
PE 03	PATHFIT 3: Menu of Dance, Sports, Martial Arts, Group Exercises, Outdoor and Adventure Activities	2	0	2	PE02
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath08	Differential Equations I	3	0	3	AMath06
AMath09	Linear Algebra	3	0	3	AMath03
AMath10	Probability	3	0	3	AMath06
ChemSci02	Inorganic Analytical Chemistry	3	6	5	
GE07	Science, Technology and Society	3	0	3	
GESSP02	Peace and Development	3	0	3	
PE 04	PATHFit 4: Menu of Dance, Sports, Martial Arts, Group Exercises, Outdoor and Adventure Activities	2	0	2	PE03

3rd YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 11	Discrete Mathematics	3	0	3	
AMath 12	Advanced Calculus I	3	0	3	AMath 06
AMath 13	Statistical Theory	3	0	3	
AMath Elec 01	Graph Theory and Applications	3	0	3	
AMath Elec 06	Applied Statistics	3	0	3	
AMath 06	Abstract Algebra I	3	0	3	
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 14	Numerical Analysis	3	0	3	AMath 04, AMath 05
AMath 15	Operations Research I	3	0	3	AMath 05

AMath 16	Theory of Interest	3	0	3	AMath 11
AMath Elec 02	Time Series Analysis	3	0	3	
AMath UT 01	Undergraduate Thesis I (Outline)	1	3	2	
AMath Elec 07	Methods of Research in Applied Statistics	3	0	3	

4th YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 17	Mathematical Modeling	3	0	3	AMath 04, AMath 08, AMath 09
AMath Elec 03	Real Analysis	3	0	3	AMath 12
AMath UT 02	Undergraduate Thesis II (Conduct)	0	6	2	
AMath Elec 04	Applied Multivariate Analysis	3	0	3	
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
GE 09	The Life and Works of Rizal	3	0	3	
AMath UT 03	Undergraduate Thesis III (Manuscript Writing)	1	3	2	
AMath Elec 05	Mathematical Biology	3	0	3	

The three-year Bachelor of Science in Applied Mathematics (BSAM) program of the University of Southern Mindanao provides students with a strong foundation in mathematics, analytical reasoning, and quantitative problem-solving. Its curriculum integrates fundamental and advanced mathematical concepts with computational techniques and applications in related disciplines. The three-year program offers prospective students an alternative pathway to completing a college degree in a shorter period, enabling them to pursue employment, research opportunities, or further studies sooner. It aims to develop graduates equipped with the mathematical, analytical, and computational skills necessary for professional practice and advanced studies in mathematics and allied fields.

3-Year Course Program

1st YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 01	Calculus 1	4	0	4	
AMath 04	Fundamentals of Computing 1	2	3	3	
AMath 07	Fundamental Concept of Mathematics	3	0	3	
GE 01	Understanding the Self	3	0	3	
GE 02	Readings in Philippine History	3	0	3	
GE 03	The Contemporary World	3	0	3	
GE 04	Math in the Modern World	3	0	3	

PE 01	PATHFit1: Movement Competency Training	2	0	3	
NSTP 01	Civic Welfare Training Service1/Reserved Officers Training Corps 1	3	0	3	
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 02	Calculus 2	4	0	4	AMath 01
AMath 05	Fundamentals of Computing 2	2	3	3	AMath 04
AMath 06	Abstract Algebra	3	0	3	
AMath 09	Linear Algebra	3	0	3	
PhySci 01 Lec	General Physics 1	3	0	3	
PhySci 01 Lab	General Physics Lab 1	0	3	1	
GEMST 01	Environmental Science	3	0	3	
PE02	PATHFit2: Exercise-based Fitness Activities	2	0	2	PE 01
NSTP 02	Civic Welfare Training Service1/Reserved Officers Training Corps 2	3	0	3	NSTP 01

1st YEAR					
Summer/Midyear					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMaht 03	Calculus 3	4	0	4	AMath 02
GEMST 03	Living in the IT Era	3	0	3	

2nd YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 10	Probability	3	0	3	AMath 03
AMath 11	Discrete Mathematics	3	0	3	
AMath 12	Advanced Calculus	3	0	3	AMath 03
AMath 15	Operations of Research 1	3	0	3	AMath 05, AMath 09
GE 05	Purposive Communication	3	0	3	
GE 06	Art Appreciation	3	0	3	
GE 07	Science, Technology, and Society	3	0	3	
PE 03	PATHFit3: Menu of Dance, Sports, Martial Arts, Group Exercises, Outdoor and Adventure Activities	2	0	2	PE 02
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 08	Differential Equation 1	3	0	3	AMath 03
AMath 17	Mathematical Modeling	3	0	3	AMath 08
AMathElec 01	Graph Theory and Applications	3	0	3	
AMathElec 02	Time Series Analysis	3	0	3	AMath 10

AMathElec 04	Applied Multivariate Analysis	3	0	3	AMath 10
AMathUT 01	Undergraduate Thesis 1	2	0	2	
AMathChem 01	General Chemistry 1	2	3	3	
GE 09	The Life and Works of Rizal	3	0	3	
PE 04	PATHFit4: Menu of Dance, Sports, Martial Arts, Group Exercises, Outdoor and Adventure Activities	2	0	2	PE 03

2nd YEAR					
Summer/Midyear					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMahtElec 06	Free Elective 1	3	0	3	AMath 10
AMathBiosci 01	General Biology	3	0	3	
GE 08	Ethics	3	0	3	

3rd YEAR					
First Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 14	Numerical Analysis	3	0	3	AMath 03, AMath 05
AMahtElec 03	Real Analysis	3	0	3	AMath 12
AMahtElec 07	Free Elective 2	3	0	3	
AMathUT 02	Undergraduate Thesis 2	2	0	2	AMathUT 01
GEAH 02	Philippine Popular Culture	3	0	3	
Second Semester					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMath 13	Statistical Theory	3	0	3	AMath 10
AMath 16	Theory of Interest	3	0	3	
AMathElec 05	Mathematical Biology	3	0	3	AMath 08
AMathUT 03	Undergraduate Thesis 3	2	0	2	AMathUT 02

3rd YEAR					
Summer/Midyear					
Course Code	Course Title	Lecture	Lab	Units	Pre-Requisite
AMathElec 01	Free Elective 1	3	0	3	AMath 10
AMathBioSci 01	General Biology	3	0	3	
GE 08	Ethics	3	0	3	

- Present the CHED Memorandum Order of the Program (*if there is any).*

CMO-48-s-2017.pdf

2. IMPLEMENTATION

- Describe and/or make comparison of the duly approved course in the curriculum with CHED/PRC standards or minimum requirements in terms of units

The four-year BS Applied Mathematics curriculum of the University of Southern Mindanao meets the CHED minimum requirements for General Education (36 units), Mandated Subjects (14 units), and Electives (21 units). It exceeds the minimum requirements for Specialization by 3 units (54 versus 51 units), Thesis by 3 units (6 versus 3 units), and Non-Mathematics Foundational Courses by 4 units (14 versus 10 units). No separate Professional Subject units or PRC requirements are indicated in the table.

4-Year Course Program

COURSE	NUMBER OF UNITS		
	SUC Curriculum	CHED Min. Requirements	PRC Requirements
a. General Education	36	36	–
b. Mandated Subjects	14	14	–
c. Professional Subject	–	–	–
d. Specialization	54	51	–
e. Elective	21	21	–
f. Thesis	6	3	–
Etc. (Non Math Foundational Course)	14	10	–

The three-year BS Applied Mathematics curriculum of the University of Southern Mindanao meets the CHED minimum requirements for General Education (36 units), Mandated Subjects (14 units), and Electives (21 units). It exceeds the minimum requirements for Specialization by 3 units (54 versus 51 units) and Thesis by 3 units (6 versus 3 units). The Non-Mathematics Foundational Courses account for 10 units, equal to the CHED minimum requirement. No separate Professional Subject units or PRC requirements are indicated in the table.

3-Year Course Program

COURSE	NUMBER OF UNITS		
	SUC Curriculum	CHED Min. Requirements	PRC Requirements
a. General Education	36	36	–
b. Mandated Subjects	14	14	–
c. Professional Subject	–	–	–
d. Specialization	54	51	–
e. Elective	21	21	–
f. Thesis	6	3	–
Etc. (Non Math Foundational Course)	10	10	

- Describe the congruence of the curricular program with the vision and mission of the institution and the Goals of the Academic Unit.

The BS Applied Mathematics curriculum supports the vision and mission of the University of Southern Mindanao (USM) by providing quality education that develops globally competitive graduates equipped with analytical, computational, and problem-solving skills for sustainable development. It aligns with the goals of the College of Science and Mathematics to develop competent scientists and mathematicians, promote research, and address societal and industry challenges. Furthermore, it advances the objectives of the Department of Mathematics and Statistics by strengthening mathematical proficiency, critical thinking, rigorous reasoning, and the application of mathematics across disciplines.

- Describe how the curriculum was designed, developed, monitored, reviewed and approved by authorities concerned, including the participation of the academic community and the stakeholder.

The BS Applied Mathematics curriculum is developed and reviewed in accordance with applicable CHED standards and university policies. The process involves curriculum evaluation and consultation with relevant stakeholders, including faculty, students, alumni, and industry representatives, to ensure the program's academic relevance and responsiveness to current needs. The proposed curriculum undergoes review, endorsement, and approval by the appropriate university authorities. Monitoring and periodic review help maintain its alignment with program outcomes, developments in applied mathematics, and the needs of the academic community.

- Describe the system/s used in evaluating and improving the quality of the program including:
  - the role of stakeholders
  - the integration of recent trends and developments
  - the updating of course syllabi

The quality of the Bachelor of Science in Applied Mathematics (BSAM) program is evaluated and improved through curriculum review, stakeholder consultation, and periodic updating of course syllabi. Faculty members, students, alumni, and industry representatives contribute feedback and recommendations to ensure that the curriculum remains relevant, responsive to stakeholder needs, and aligned with the program's intended outcomes.

Recent trends and developments in applied mathematics, including mathematical biology, machine learning, computing, and mathematical modeling, are considered in reviewing and enhancing course content, instructional materials, and learning activities. These developments help ensure that students acquire relevant mathematical, analytical, computational, and problem-solving competencies applicable to emerging scientific and technological challenges.

Course syllabi are reviewed and updated to maintain alignment among course learning outcomes, program outcomes, teaching and learning strategies, assessment methods, and learning resources. The university's prescribed syllabus review, verification, and validation procedures provide a framework for ensuring the quality and consistency of course syllabi. Through these mechanisms, the program seeks to sustain instructional quality and continuously improve the relevance and effectiveness of its curriculum.

- Describe the system used to accommodate students with special needs.

The University of Southern Mindanao (USM), through its academic units and concerned offices, supports students with special needs to promote equitable access to learning opportunities. Students requiring assistance may coordinate with faculty members, the Department, and appropriate university offices to identify their needs and determine suitable accommodations.

At the classroom level, faculty members may provide appropriate instructional adjustments, accessible learning materials, and reasonable accommodations in learning activities and assessments, as appropriate. Coordination with relevant university offices may be undertaken when additional assistance or referrals are needed.

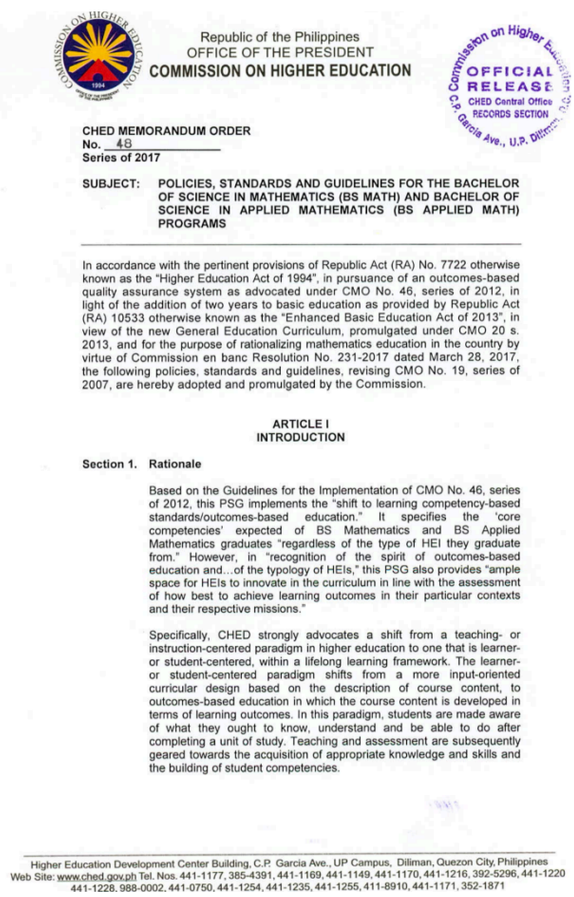
The program aims to foster an inclusive and supportive learning environment that enables students with special needs to participate meaningfully in academic activities and pursue their educational goals.

3. OUTCOMES

- Cite instances that the curriculum is responsive and relevant to the demand of the times.

The Bachelor of Science in Applied Mathematics (BSAM) curriculum of the University of Southern Mindanao (USM) demonstrates responsiveness to contemporary academic, scientific, technological, and societal needs through the following:

- **Integration of Emerging Developments.** Developments in applied mathematics, including mathematical biology, computational mathematics, and mathematical modeling, provide relevant areas for enhancing course content and learning activities
  Curriculum/Program of Study.pdf S1.pdf



Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION

Commission on Higher Education
OFFICIAL RELEASE
CHED Central Office
RECORDS SECTION
C.P. Garcia Ave., U.P. Diliman

CHED MEMORANDUM ORDER
No. 48
Series of 2017

SUBJECT: POLICIES, STANDARDS AND GUIDELINES FOR THE BACHELOR OF SCIENCE IN MATHEMATICS (BS MATH) AND BACHELOR OF SCIENCE IN APPLIED MATHEMATICS (BS APPLIED MATH) PROGRAMS

In accordance with the pertinent provisions of Republic Act (RA) No. 7722 otherwise known as the "Higher Education Act of 1994", in pursuance of an outcomes-based quality assurance system as advocated under CMO No. 46, series of 2012, in light of the addition of two years to basic education as provided by Republic Act (RA) 10533 otherwise known as the "Enhanced Basic Education Act of 2013", in view of the new General Education Curriculum, promulgated under CMO 20 s. 2013, and for the purpose of rationalizing mathematics education in the country by virtue of Commission en banc Resolution No. 231-2017 dated March 28, 2017, the following policies, standards and guidelines, revising CMO No. 19, series of 2007, are hereby adopted and promulgated by the Commission.

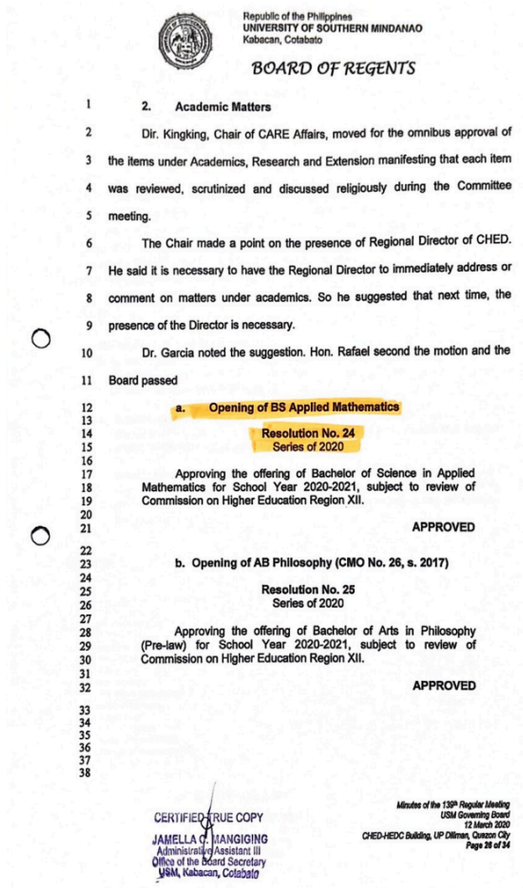
ARTICLE I
INTRODUCTION

Section 1. Rationale

Based on the Guidelines for the Implementation of CMO No. 46, series of 2012, this PSG implements the "shift to learning competency-based standards/outcomes-based education." It specifies the 'core competencies' expected of BS Mathematics and BS Applied Mathematics graduates "regardless of the type of HEI they graduate from." However, in "recognition of the spirit of outcomes-based education and...of the typology of HEIs," this PSG also provides "ample space for HEIs to innovate in the curriculum in line with the assessment of how best to achieve learning outcomes in their particular contexts and their respective missions."

Specifically, CHED strongly advocates a shift from a teaching- or instruction-centered paradigm in higher education to one that is learner- or student-centered, within a lifelong learning framework. The learner- or student-centered paradigm shifts from a more input-oriented curricular design based on the description of course content, to outcomes-based education in which the course content is developed in terms of learning outcomes. In this paradigm, students are made aware of what they ought to know, understand and be able to do after completing a unit of study. Teaching and assessment are subsequently geared towards the acquisition of appropriate knowledge and skills and the building of student competencies.

Higher Education Development Center Building, C.P. Garcia Ave., UP Campus, Diliman, Quezon City, Philippines
Web Site: www.ched.gov.ph Tel. Nos. 441-1177, 385-4391, 441-1169, 441-1149, 441-1170, 441-1216, 392-5296, 441-1220 441-1228, 988-0002, 441-0750, 441-1254, 441-1235, 441-1255, 411-8910, 441-1171, 352-1871



Republic of the Philippines
UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Cotabato

BOARD OF REGENTS

2. Academic Matters

Dir. Kingking, Chair of CARE Affairs, moved for the omnibus approval of the items under Academics, Research and Extension manifesting that each item was reviewed, scrutinized and discussed religiously during the Committee meeting.

The Chair made a point on the presence of Regional Director of CHED. He said it is necessary to have the Regional Director to immediately address or comment on matters under academics. So he suggested that next time, the presence of the Director is necessary.

Dr. Garcia noted the suggestion. Hon. Rafael second the motion and the Board passed

a. Opening of BS Applied Mathematics

Resolution No. 24
Series of 2020

Approving the offering of Bachelor of Science in Applied Mathematics for School Year 2020-2021, subject to review of Commission on Higher Education Region XII.

APPROVED

b. Opening of AB Philosophy (CMO No. 26, s. 2017)

Resolution No. 25
Series of 2020

Approving the offering of Bachelor of Arts in Philosophy (Pre-law) for School Year 2020-2021, subject to review of Commission on Higher Education Region XII.

APPROVED

CERTIFIED TRUE COPY
JAMELLA C. MANGIGING
Administrative Assistant III
Office of the Board Secretary
USM, Kabacan, Cotabato

Minutes of the 139th Regular Meeting
USM Governing Board
12 March 2020
CHED-HEDC Building, UP Diliman, Quezon City
Page 26 of 34

- **Student Presentations and Academic Activities.** Student presentations, research colloquia, and classroom activities provide opportunities for students to explore

mathematical concepts, communicate their findings, and engage with relevant developments in the discipline.

Student Researches.pdf Students Mini Research

BS Applied Mathematics LaTeX Workshops.pdf







- **Application-Based Learning.** Problem-solving exercises, computational activities, and mathematical modeling tasks enable students to apply mathematical theories and methods to practical problems.
  Students Mini Research


SIRS Epidemic Model with Constant
ecruitment and Demographic Effect

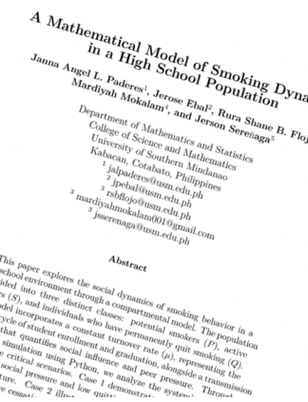
N. Guiamlod[1], Noraid M. Kalumsiang[2], Muhajid B. Kansi[3],
Bainiya K. Lapadzing[4], and Ressa Mae R. Zolina[5]

Department of Mathematics and Statistics
College of Science and Mathematics
University of Southern Mindanao
Kabacan, North Cotabato, Philippines

Abstract

This article presents an SIRS epidemic model incorporating cor
recruitment and demographic effect. The population is divid
three compartments: susceptible class at a constant recruit
Individuals enter the susceptible class equally. Di
while natural mortality affects all compartments equally. Di
follow standard incidence, and recovered individuals may
and return to the susceptible class. The study investiga
and uniqueness of solution, determines equilibrium p
the stability of the disease-free equilibrium. Nume
also discussed to illustrate the model dynamics.

Keywords: SIRS model, epidemic modeling


A Mathematical Model of Smoking Dynami
in a High School Population

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Mardiyah Mokalam[4], and Jerson Serenaga[5]

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Abstract

This paper explores the social dynamics of smoking behavior in a
high school environment through a compartmental model. The population
is divided into three distinct classes: potential smokers (P), active
smokers (S), and individuals who have permanently quit smoking (Q).
The model incorporates a constant turnover rate (μ), representing the
natural cycle of student enrollment and graduation, alongside a transmission
rate (β) that quantifies social influence and peer pressure. Through
numerical simulation using Python, we analyze the pressure.
under three critical scenarios. Case 1 demonstrates
where high social pressure and low quitting
smoking culture. Case 2 illustrates
where effective cessation

- **Undergraduate Research and Thesis Projects.** Student research projects demonstrate the application of mathematical knowledge and analytical skills to investigate problems in applied mathematics and related fields.
  Student Researches.pdf

Research Title	Time Frame	Date of Completion	Researcher/s	Faculty Adviser
1. TRIANGULAR ARRAYS AND POLYNOMIAL COEFFICIENTS	1.5 YEARS	June 11, 2026	NORSIDA U. SANGKOPAN	SANDRA A. NANDING, MSc.
2. SECURE DOMINATING SET OF THE GRAPH: FAN, FRIENDSHIP, LADDER, AND PRISM	1.5 YEARS	June 02, 2026	NICOLE ANNE I. EGLESIAS	PHILIP LESTER P. BENJAMIN, PhD.
3. BIPARTITE DOMINATION NUMBER OF SOME SPECIAL GRAPHS	1.5 YEARS	June 01, 2026	AKMAD K. GALMAK	PHILIP LESTER P. BENJAMIN, PhD.
4. ON THE COMPARISON BETWEEN FRIEDMAN AND QUAD TESTS	1.5 YEARS	June 01, 2026	NORONISA E. MUSTAPHA	DARYL MAE C. MAMON, PhD.
5. APPLICATIONS OF GRAPH THEORY TO THE POSTMAN'S PROBLEM FOR OPTIMAZING J&T RIDER ROUTES IN DAGONG MLANG	1.5 YEARS	June 01, 2026	HAIRONISA E. MUSTAPHA	JUPITER G. PILONGO, MS
6. COMPARISON OF THE ITEM DIFFICULTY ESTIMATES ON THE MATHEMATICS IN THE MODERN WORLD EXAMINATION USING DIFFERENT IRT MODELS	1.5 YEARS	May 26, 2026	NORHATA M. MASLAMANIA	JONALD L. PIMENTEL, PhD.
7. CONNECTED CERTIFIED DOMINATION OF SOME SEPCIAL GRAPHS	1.5 YEARS	May 25, 2026	MARDIYAH I. MOKALAM	SANDRA A. NANDING, MSc.
8. CERTIFIED PERFECT DOMINATION OF SOME SPECIAL GRAPHS	1.5 YEARS	May 25, 2026	ZULHANNI M. SAWA	SANDRA A. NANDING, MSc.
9. CERTIFIED DOMINATION OF SOME SPECIAL GRAPHS	1.5 YEARS	May 25, 2026	BAINIYA M. LAPADZING	SANDRA A. NANDING, MS
10. OPTIMIZING AMBULANCE ROUTES FROM THE HOSPITAL OF BANISILAN WITHIN BANISILAN PROBLACION, NORTH COTABATO USING DIJKSTRA'S ALGORITHM	1.5 YEARS	May 15, 2026	JEROSE P. EBAL	JUPITER G. PILONGO, MS
11. MATHEMATICAL MODEL FOR NOROVIRUS TRANSMISSION WITH HUMAN INFECTION AND ENVIRONMENTAL COMPARTMENT DYNAMICS	1.5 YEARS	May 13, 2026	RESSA MAE R. ZOLINA	JEAD M. MACALISANG, MSc.
12. EXPLORING NORMALITY TEST METHODOLOGY WITH SECONDARY DATA	1.5 YEARS	June 04, 2025	DARLA C. CAJUTOL	DARYL MAE C. MAMON, MAS
13. FORECASTING MONTHLY WHOLESALE PRICE OF MILKFISH IN THE PHILIPPINES UNDER THE ARIMA MODELING	1.5 YEARS	June 03, 2025	RONNIE A. JAMELARIN JR.	ANNA JEAN S. GARCIA,MAS
14. FORECASTING THE FARMGATE PRICE OF DRY PALAY OF COTABATO PROVINCE	1.5 YEARS	June 03, 2025	ROY D. JONGCO	ANNA JEAN S. GARCIA,MAS
15. TIC-TAC-TOE ON GRAPHS: IT'S WINNING AND DRAWING STRATEGIES	1.5 YEARS	May 30, 2025	HANNIN K. ISMAEL	JUPITER G. PILONGO, MS
16. LIKELIHOOD OF PASSING LICENSURE EXAM IN AGRICULTURE AMONG USM GRADUATES USING BINARY LOGISTIC REGRESSION	1.5 YEARS	May 30, 2025	JEAN B. BABARAN	DARYL MAE C. MAMON, MAS
17. OPTIMAL ROUTES USING DIJKSTRA'S ALGORITHM AND GRAPH MODELS	1.5 YEARS	May 29, 2025	IVY JOY O. BENEMERITO	JUPITER G. PILONGO, MS
18. ORECASTING THE OIL PALM PRICE MILL IN CARMEN NORTH COTABATO	1.5 YEARS	May 29, 2025	NORMI-ANN L. OLYMPAIN	ANNA JEAN S. GARCIA, MAS

Research Title	Time Frame	Date of Completion	Researcher/s	Faculty Adviser
19. ANALYZING THE TRENDS OF VOLUME OF PRODUCTION OF THE CORN IN THE PHILIPPINES USING ARIMA MODEL (1987-2023)	1.5 YEARS	May 29, 2025	MERIAM T. DATANG	ANNA JEAN S. GARCIA,MAS
20. AN OVERVIEW OF SOME STRONGLY PERFECT GRAPHS	1.5 YEARS	May 26, 2025	NASROLAH B. ANDOYUGEN	SANDRA A. NANDING, MSc.
21. AN OVERVIEW OF SOME STRONGLY PERFECT GRAPH	1.5 YEARS	May 26, 2025	NASROLAH B. ANDOYUGEN	SANDRA A. NANDING, MS
22. THE EFFECT OF OPTION HOMOGENEITY IN THE ITEM DIFFICULTY ESTIMATES ON A MULTIPLE-CHOICE EXAMINATION UNDER THE RASCH MODEL	1.5 YEARS	May 23, 2025	CARL IVAN P. LELIS	JONALD L. PIMENTEL, PhD
23. BIPARTITE DOMINAITON NUMBER IN JOIN GRAPHS	1.5 YEARS	May 21, 2025	SAULA P. KAMENSA	PHILIP LESTER P. BENJAMIN, PhD.
24. FORECASTING THE EXCHANGE RATES OF US DOLLAR TO PHILIPPINE PESO USING ARIMA TIME SERIES ANALYSIS	1.5 YEARS	April 04, 2025	DESIREE G. VICTORIA	JONALD L. PIMENTEL, PhD.
25. ANALYSIS OF SCORING SCHEMES FOR MULTIPLE-CHOICE EXAMINATION	1.5 YEARS	June 06, 2024	ZAHERA S. KADIL	DEBBIE MARIE B. VERSOZA, PhD.
26. DOMINATION IN THE JOIN OF GRAPHS	1.5 YEARS	June 06, 2024	MIKEE V. TONIACAO	LEONARD M. PALETA, PhD
27. HOP DOMINATION IN THE JOIN OF GRAPHS	1.5 YEARS	June 06,2024	FAHAD E. PIANG	SANDRA A. NANDING, MS
28. DOMINATION IN THE EDGE CORONA OF GRAPHS	1.5 YEARS	June 06, 2024	JANNA FIE A. TORMIS	LEONARD M. PALETA, PhD
29. COMPARISON OF NEWTON'S SECANT, BISECTION, AND FIXED-POINT ITERATION METHODS IN THE SOLUTION OF NON-ELEMENTARY EQUATIONS	1.5 YEARS	June 06, 2024	LUWALHATI M. ORBISTA	ENGR. ARNEL B. TOLEDO
30. DOMINATION IN THE CORONA OF GRAPHS	1.5 YEARS	June 05, 2024	FLORABELLE L. CAMPOS	LEONARD M. PALETA, PhD
31. ON THE CALIBRATION OF ITEM PARAMETERS CHARACTERISTICS OF THE UNIVERSITY OF SOUTHERN MINDANAO -COLLEGE ENTRANCE EXAM USING 2PL MODEL: A CASE FOR MATHEMATICS ITEMS	1.5 YEARS	June 05, 2024	JALANIE T. MATULIK	JONALD L. PIMENTEL, PhD

- **Stakeholder Consultation.** Consultations involving faculty, students, alumni, and industry representatives provide opportunities to gather recommendations for maintaining the relevance of the curriculum.
  Curriculum Revision.pdf

- **Curriculum and Syllabus Review.** Curriculum evaluation and syllabus review provide mechanisms for maintaining alignment with applicable CHED standards, program outcomes, and developments in applied mathematics.
  Curriculum Revision.pdf



Republic of the Philippines
Kabacan, Cotabato
UNIVERSITY OF SOUTHERN MINDANAO

June 15, 2026

CERTIFICATION OF FACULTY CONTRIBUTION TO CURRICULUM REVISION

This is to certify that Roel S. Valenton, a dedicated member of our faculty at Department of Mathematics and Statistics, has made significant contributions to the development of the curriculum for Bachelor of Science in Applied Mathematics program as a contributor during the curriculum design process, ensuring the highest standards of academic excellence and relevance.

Roel S. Valenton has demonstrated exceptional expertise, commitment, and innovation throughout the curriculum development process. Their involvement as a contributor has been instrumental in shaping the educational experience of our students and enhancing the overall quality of our academic programs.

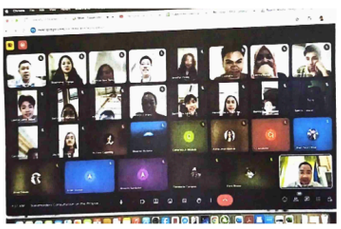
The specific contributions made by Roel S. Valenton to the curriculum development process include, but are not limited to:

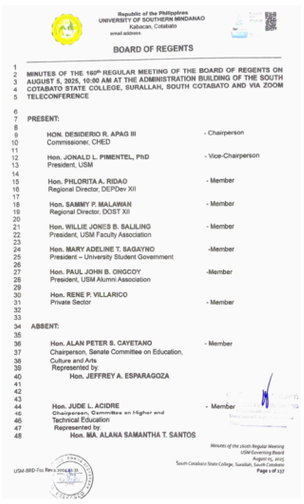
1. Gathering feedback and inputs from potential employers and other stakeholders;
2. Setting/ Revising of Learning objectives and learning outcomes;
3. Reviewing of curriculum, including curriculum, including mapping, and other related activities

Roel S. Valenton's dedication and expertise have been invaluable in creating a well-rounded and dynamic curriculum that meets the needs of our students and equips them with the knowledge and skills required to excel in their chosen fields.

Certified by:

PHILIP LESTER B. BENJAMIN, PhD
Dean, College of Science and Mathematics
repzilles22@yahoo.com.ph





Republic of the Philippines
UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Cotabato
email address

BOARD OF REGENTS

MINUTES OF THE 160th REGULAR MEETING OF THE BOARD OF REGENTS ON AUGUST 5, 2025, 10:00 AM AT THE ADMINISTRATION BUILDING OF THE SOUTH COTABATO STATE COLLEGE, SURALLAH, SOUTH COTABATO AND VIA ZOOM TELECONFERENCE

PRESENT:

HON. DESIDERIO R. APAG III - Chairperson
Commissioner, CHED

Hon. JONALD L. PIMENTEL, PhD - Vice-Chairperson
President, USM

Hon. PHLORITA A. RIDAO - Member
Regional Director, DEPDev XII

Hon. SAMMY P. MALAWAN - Member
Regional Director, DOST XII

Hon. WILLIE JONES B. BALILING - Member
President, USM Faculty Association

Hon. MARY ADELINE T. BAGAYNO -Member
President – University Student Government

Hon. PAUL JOHN B. ONGCOY -Member
President, USM Alumni Association

Hon. RENE P. VILLARICO - Member
Private Sector

ABSENT:

Hon. ALAN PETER S. CAYETANO - Member
Chairperson, Senate Committee on Education, Culture and Arts
Represented by
Hon. JEFFREY A. ESPARAGOZA

Hon. JUDE L. ACIDRE - Member
Chairperson, Committee on Higher and Technical Education
Represented by
Hon. MA. ALANA SAMANTHA T. SANTOS

Minutes of the 160th Regular Meeting
USM Governing Board
August 05, 2025
South Cotabato State College, Surallah, South Cotabato
Page 1 of 137

USM-BRD-For. Rev.1 2016-01-11

- Show evidence that there is a passing average in the Licensure Examination (*if applicable*).
  - **Not Applicable**

4. BEST PRACTICES

- Cite as many best practices as you can on Parameter A (*Curriculum & Program of Studies*)

The Bachelor of Science in Applied Mathematics (BSAM) program of the University of Southern Mindanao (USM) demonstrates the following best practices in curriculum development, implementation, evaluation, and improvement:

- CHED-Aligned Curriculum – The curriculum is developed and reviewed with reference to CHED Memorandum Order No. 48, Series of 2017, to maintain compliance with applicable standards for mathematics programs.
- Stakeholder Participation in Curriculum Development – Curriculum consultations involve relevant stakeholders, including administrators, faculty members, students, alumni, and industry representatives, to obtain feedback and recommendations on the program.
- Institutional Review and Approval – Curriculum proposals undergo the appropriate university review, endorsement, and approval processes before implementation.
- Structured Curriculum Design – The curriculum is organized by year level and semester to provide a progressive sequence of mathematical foundations, advanced topics, and elective courses.
- Regular Course Syllabus Review – Syllabi are reviewed to ensure alignment among course outcomes, program outcomes, intended learning outcomes, teaching and learning activities, assessment methods, and learning resources.
- Use of Standardized Syllabus Review Procedures – The university's prescribed procedures for syllabus review, verification, and validation provide a framework for maintaining instructional quality and consistency.
- Responsiveness to Emerging Developments – Curriculum enhancement considers developments in applied mathematics, including mathematical biology, machine learning, computational mathematics, and mathematical modeling, where supported by relevant course materials, research, or learning activities.
- Application-Oriented Learning Activities – Problem-solving exercises, computational tasks, and mathematical modeling activities allow students to apply mathematical concepts and methods to practical problems.
- Student Research and Thesis Development – Undergraduate research and thesis projects provide opportunities for students to investigate mathematical problems and apply analytical and quantitative methods.

- ❖ Student Research Presentations – Research colloquia, thesis presentations, and other academic presentations provide opportunities for students to communicate mathematical ideas and research findings.
- ❖ Integration of Mathematics with Other Disciplines – Applied mathematics coursework and research activities provide opportunities to explore the use of mathematical methods in scientific, technological, and other interdisciplinary contexts.
- ❖ Continuous Curriculum Improvement – Stakeholder feedback, curriculum evaluation, and syllabus review provide mechanisms for identifying areas for improvement and maintaining the relevance of the program.

PARAMETER B. INSTRUCTION PROCESSES, METHODOLOGIES and LEARNING ENHANCEMENT OPPORTUNITIES

1. SYSTEM-INPUTS AND PROCESSES

- Present Institutional policies regarding the preparation of course syllabi and other policies on instructional processes, methodologies and learning opportunities.

The University of Southern Mindanao (USM) implements standardized procedures for the preparation, review, verification, validation, and revision of course syllabi. These are supported by the official Course Syllabus Template (USM-EDU-F05), the Checklist for Syllabus Content Review, Verification, and Validation (USM-EDU-F44), and the Document Origination/Revision Form for Syllabus (USM-SYS-F93).

These documents guide faculty members in aligning course and program outcomes, formulating intended learning outcomes, organizing course content, selecting appropriate teaching and learning activities, developing assessment tasks, and identifying relevant learning resources. The review process also covers assessment standards, grading systems, and classroom policies to promote consistency and quality in instruction.

2.IMPLEMENTATION

- Major Learning Opportunities
  - Description of procedures adopted in the production of instructional materials.

The faculty members of the Bachelor of Science in Applied Mathematics (BSAM) program of the University of Southern Mindanao (USM) prepare and develop instructional materials to support the delivery of course content, achieve intended learning outcomes, and facilitate students' understanding of mathematical concepts and their applications. These materials may include course syllabi, faculty-developed workbooks, instructional manuals, learning modules, lecture notes, presentation materials, electronic learning resources, problem sets, and other supplementary materials appropriate to the courses offered.

The production of instructional materials involves the following procedures:

1. Identification of Course Requirements and Learning Outcomes

Faculty members identify the course requirements, intended learning outcomes, and competencies that students are expected to develop. These serve as the basis for determining the content, learning activities, examples, exercises, and assessment materials to be prepared. The materials are designed to support the progressive

development of students' mathematical knowledge, analytical reasoning, computational proficiency, and problem-solving abilities.

2. Organization and Development of Instructional Content

The faculty members organize the subject matter according to the topics and sequence specified in the course syllabus. Relevant mathematical concepts, definitions, theorems, proofs, worked examples, applications, and exercises are selected or developed based on the nature and requirements of the course. Where appropriate, instructional materials incorporate problem-solving activities, mathematical computations, visual presentations, and applications that help students connect theoretical concepts with practical problems.

3. Preparation of Learning Activities and Assessment Materials

Instructional materials are developed to complement the teaching and learning activities specified for each course. These may include guided exercises, problem sets, individual seatwork, group activities, discussion questions, student presentation tasks, and other learning exercises suited to the subject. Assessment materials are prepared to evaluate students' understanding of concepts and their ability to apply mathematical methods. The activities and assessments are intended to support the achievement of the course's intended learning outcomes.

4. Review and Refinement of Instructional Materials

During preparation, faculty members examine and refine the materials to promote mathematical accuracy, logical consistency, clarity of presentation, relevance to the course content, and suitability for undergraduate students. Examples, exercises, and explanations are reviewed to ensure that they appropriately support the topics being discussed. Materials may be revised to clarify difficult concepts, improve the sequence of discussions, update references, or provide additional learning exercises when necessary.

5. Preparation, Review, Verification, and Validation of Course Syllabi

For course syllabi, the university provides standardized procedures and documentation. The official Course Syllabus Template (USM-EDU-F05, Rev. 4, February 18, 2020) guides the preparation and organization of syllabus content. The Checklist for Syllabus Content Review, Verification, and Validation (USM-EDU-F44, Rev. 5, June 10, 2021) provides a framework for examining the alignment of course outcomes with program outcomes, the formulation of intended learning outcomes, the appropriateness of teaching and learning activities, the alignment of assessments with learning outcomes, and the adequacy of learning resources. The checklist also covers assessment standards, grading systems, and classroom policies.

The prescribed review process identifies responsibilities for the review, verification, and validation of course syllabi. The Program Head or Department Curriculum Coordinator reviews the syllabus, the Chair verifies it, and the Dean validates it, in accordance with the university's prescribed procedure.

6. Documentation of Syllabus Origination and Revision

The Document Origination/Revision Form – Syllabus (USM-SYS-F93, Rev. 1, April 5, 2021) provides a means of documenting the preparation or revision of course syllabi. It records relevant information, including the reason for origination or revision and the

corresponding preparation, review, verification, validation, and disposition. This form supports the documentation and traceability of syllabus-related changes.

7. Utilization and Improvement of Instructional Materials

The completed instructional materials are used to support classroom discussions, demonstrations, independent study, mathematical exercises, collaborative learning, and other course-related activities. Faculty members may refine their materials in response to identified learning difficulties, changes in course requirements, and the need to improve the clarity and effectiveness of instruction. Student performance, classroom experiences, and the suitability of the materials for achieving the intended learning outcomes can inform subsequent improvements.

Through these procedures, the BS Applied Mathematics program seeks to ensure that instructional materials are relevant to course requirements, appropriate to students' learning needs, and supportive of the development of mathematical and analytical competencies. The university's prescribed syllabus preparation and review procedures provide a documented quality-assurance framework for course syllabi, while faculty-developed supplementary materials provide additional resources for teaching, learning, and problem-solving.

□ Teacher-made instructional materials

Instructional Materials	Title	Date Approved	Subject Where Used
A. Syllabi	AMath 01	2025.08.11	Calculus 1
	AMath 02	2025.12.22	Calculus 2
	AMath 03	2026.01.09	Calculus 3
	AMath 07	2026.01.06	Fundamental Concepts of Mathematics
	AMath 08	2025.12.17	Differential Equations I
	AMath 09	2025.12.22	Linear Algebra
	AMath 11	2025.12.18	Discrete Mathematics
	AMath 12	2025.12.19	Advance Calculus I
	AMath 13	2025.07.28	Statistical Theory
	AMath 14	2026.01.09	Numerical Analysis
	AMath 15	2025.01.17	Operations Research I
	AMath 16	2025.12.16	Theory of Interest
	AMath 17	2025.12.22	Mathematical Modeling
	AMath Elec 01	2026.01.07	Graph Theory and Applications
	AMath Elect 01	2022.08.05	Items Response Theory
	AMath Elec 02	2026.01.22	Time Series Analysis
	AMath Elec 03	2023.06.28	Qualified Elective (Coding Theory)
	AMath Elec 03*	2025.12.22	Real Analysis
	AMath Elec 04	2025.05.21	Multivariate Analysis

	AMath Elec 05	2025.12.22	Mathematical Biology
B. Workbooks	–	–	–
C. Manuals	–	–	–
D. Modules	Mathematics in the Modern World		GE 04
	Mathematical Biology		AMath Elec 05
	Graph Theory and Applications		AMath Elec 01
	Applied Statistics		Stat 01
	Calculus I		AMath 01
	Comprehensive Mathematics		IndT Math 01
	Discrete Mathematics		AMath 15
	Linear Programming		EnSci Math 03
	Theory of Interest		AMath 06
	Fundamental Concepts of Mathematics		AMath 07
	Calculus for Biological Sciences		MicroB Math 01
	History of Mathematics		
	Number Theory		
	Geometry		
	Problem Solving, Mathematical Modeling		
	Foundations of Mathematics		
	Teaching Mathematics in the Intermediate Grades		
E. Electronic Materials	–	–	–
F. Others	–	–	–

□ Teaching strategies used to facilitate/enrich learning

Teaching Strategy Used	Subject Where Strategy is Used
1. Class Discussion	AMath 01, AMath 02, AMath 03, AMath 07, AMath 08, AMath 09, AMath 11, AMath 12, AMath 13, AMath 14, AMath 15, AMath 16, AMath 17, AMath Elec 01, AMath Elec 02, AMath Elec 03, AMath Elec 04, AMath Elec 05, AMath Elec 06, AMath Elec 07, A MATH ELECT 01
2. Individual Inquiry	AMath 01, AMath 03, AMath 07, AMath 08, AMath 09, AMath 11, AMath 12, AMath 14, AMath 16, AMath Elec 01, AMath Elec 03*, AMath Elec 04, AMath Elec 05, AMath Elec 07

3. Collaborative Learning and Group Discussion	AMath 01, AMath 02, AMath 07, AMath 08, AMath 12, AMath 13, AMath 14, AMath 16, AMath 17, AMath Elec 01, AMath Elec 02, AMath Elec 03*, A MATH ELECT 01
4. Problem-Solving Exercises, Independent Seatwork, and Written Exercises	AMath 01, AMath 02, AMath 03, AMath 07, AMath 08, AMath 09, AMath 11, AMath 12, AMath 13, AMath 14, AMath 15, AMath 16, AMath 17, AMath Elec 01, AMath Elec 02, AMath Elec 03*, AMath Elec 05, AMath Elec 06, AMath Elec 07, A MATH ELECT 01
5. Group Reporting, Student Presentations, and Question-and-Answer Activities	AMath 01, AMath 02, AMath 03, AMath 07, AMath 08, AMath 09, AMath 11, AMath 12, AMath 13, AMath 14, AMath 16, AMath Elec 01, A MATH ELECT 01, AMath Elec 03*, AMath Elec 05, AMath Elec 07
6. Module-Based Instruction	AMath 02, AMath 07, AMath 09, AMath 11, AMath 13, AMath 15, AMath 16, A MATH ELECT 01 (Item Response Theory), AMath Elec 02, AMath Elec 03, AMath Elec 06

3. OUTCOMES

- Present evidence that course syllabi are updated and approved.

  Applied Mathematics Syllabus(updated).pdf

- Cite evidence that teaching strategies are efficiently and effectively used.

The effective and efficient use of teaching strategies in the BS Applied Mathematics program is demonstrated through the following evidence:

- Course Syllabi – Course Learning Plans specifying teaching and learning activities aligned with intended learning outcomes.
  Applied Mathematics Syllabus(updated).pdf
- Instructional Materials – Faculty-developed lecture notes, presentation slides, modules, and other instructional resources used to facilitate learning.
  Instructional Materials Copyrighted.pdf
- Student Outputs – Completed problem sets, written exercises, mathematical investigations, and other learning activities demonstrating the application of mathematical concepts. I.7 I.10
- Group Activities and Student Presentations – Group reports, presentation slides, and photographs documenting collaborative learning and student participation in academic activities. I.7 I.10
- Student Research Outputs – Undergraduate thesis manuscripts, research presentations, and Mathematical Biology projects, where applicable. I.7 I.10
- Assessment Materials and Results – Quizzes, examinations, assessment rubrics, and other records used to evaluate students' achievement of the intended learning outcomes. I.7 I.10

- ❖ Classroom Implementation Records – Lesson plans, classroom observation reports, and other available documentation demonstrating the actual implementation of teaching strategies. I.7 I.10

 Show evidence/s that Instructional Materials are copyrighted/patented.

Instructional Materials Copyrighted.pdf

4. BEST PRACTICES

 Cite as many best practices as you can on Parameter B (Instructional Process, Methodologies and Learning Opportunities)

The BS Applied Mathematics program of the University of Southern Mindanao (USM) employs instructional practices designed to facilitate student learning, strengthen mathematical competencies, and promote the application of mathematical knowledge. The following are potential best practices supported by the program's instructional processes and learning activities:

- ❖ Outcome-Based Instruction – Course learning plans specify intended learning outcomes and align them with course content, teaching and learning activities, and assessment tasks.
- ❖ Lecture-Discussion and Demonstration – Faculty members explain mathematical concepts, demonstrate solution procedures, and present worked examples to help students understand mathematical principles and methods.
- ❖ Problem-Solving Activities: Exercises, problem sets, and written activities provide opportunities for students to apply mathematical concepts and develop analytical and problem-solving skills.
- ❖ Individual Inquiry and Independent Learning – Individual inquiry and independent exercises encourage students to explore mathematical concepts, formulate solutions, and develop independent reasoning.
- ❖ Collaborative Learning and Group Discussion – Group discussions and collaborative activities encourage students to exchange ideas, compare solution methods, and learn from their peers.
- ❖ Student Presentations and Group Reporting – Presentations and group reports provide opportunities for students to explain mathematical concepts, communicate solutions, and discuss their findings.
- ❖ Question-and-Answer Activities – Classroom discussions and question-and-answer activities allow students to clarify concepts, explain their reasoning, and engage actively in learning.
- ❖ Use of Instructional Technology – Presentation software, projectors, computers, and electronic learning materials support the presentation and explanation of mathematical concepts, where indicated in the course syllabi.
- ❖ Faculty-Developed Instructional Materials – Lecture notes, learning modules, presentation materials, workbooks, and other instructional resources supplement textbooks and support students' understanding of course content, where available.
- ❖ Research-Oriented Learning – Undergraduate research, thesis work, and research presentations provide opportunities for students to investigate mathematical problems and communicate research findings.
- ❖ Interdisciplinary Learning Opportunities – Subjects and research activities involving areas such as mathematical biology provide opportunities to explore the application of mathematical methods to problems in other disciplines.

- ❖ Varied Assessment Methods – Quizzes, problem sets, written exercises, assignments, and examinations are used to assess students' understanding and application of mathematical concepts.
- ❖ Alignment of Instruction and Assessment – Course learning plans identify assessment tasks corresponding to intended learning outcomes, helping ensure that student learning is evaluated in relation to course objectives.
- ❖ Use of References and Supplementary Learning Resources – Course syllabi identify textbooks, readings, and other learning resources to support classroom instruction and independent study.
- ❖ Progressive Development of Mathematical Competencies – The curriculum provides a sequence of mathematics and applied mathematics subjects through which students develop foundational knowledge and progress toward more advanced mathematical concepts and applications.

PARAMETER C – ASSESSMENT OF ACADEMIC PERFORMANCE

1. SYSTEM-INPUTS AND PROCESSES

 Present institutional and/or College policies/system of assessing academic performance

The University of Southern Mindanao (USM) and the College of Science and Mathematics (CSM) enforce a standardized, outcomes-based system for assessing academic performance, governed by the USM Code, ISO Quality Management System (QMS) Procedures, and Faculty Manual directives.

1. Standardized Outcomes-Based Grading System

• Uniform Numerical Scale: Academic performance is evaluated using a uniform numerical grading scale in multiples of 0.25, ranging from 1.00 (Excellent / 99–100%) to 3.00 (Passed / 75–77%), with 5.00 (74% & below) indicating failure.

• Special Grade Notations: Non-numerical entries include INC (Incomplete), Drp (Dropped), and IP (In Progress—reserved exclusively for Thesis/Research and OJT/Internship).

• Grade Consultation & Online Submission: Faculty must hold a grade consultation period with students prior to posting final grades. Official Reports of Grades must be encoded and posted online (via the Marka portal) within ten (10) calendar days after the last day of midterm and final examinations.

2. TOS-Designed Summative Examinations

• Table of Specifications (TOS): Major examinations (Midterms and Finals) are constructed using a predesigned Table of Specifications (TOS) aligned with Bloom's Taxonomy to ensure comprehensive coverage across cognitive levels (Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating).

• Central Scheduling & Timely Feedback: Major examination schedules are determined centrally by the Office of the Vice President for Academic Affairs (OVPAA). Corrected examination papers and results must be released and returned to students within two (2) weeks after test administration.

3. Formative & Performance-Based Evaluation Measures

• Multi-Faceted Assessment Tools: Student learning is measured through a balanced combination of formative tests (quizzes, unit tests, recitations), paper-and-pencil summative tests, practical software demonstrations (e.g., statistical software simulations and Mathematical modeling), and oral research defenses.

4. Rules on Incomplete ("INC") Grades and "In Progress" ("IP") Notations

• INC Rating: Assigned to a student with passing class standing who fails to submit substantial course requirements due to valid reasons. Requirements must be satisfied and an official paid Completion Form processed within one (1) semester; otherwise, the grade remains incomplete without credit, requiring course re-enrollment.

• IP Rating: Issued for unfinished Thesis or OJT/Internship. Students are granted one (1) year to complete requirements and receive a final grade; failure to complete within this timeframe mandates course re-enrollment.

5. Policies on Academic Delinquency

• Warning: Issued to students obtaining failing grades in 25% to 49% of their total semester unit load; academic load is limited to a maximum of 18 units in the succeeding term.

• Probation: Applied to students failing 50% to 75% of their load, restricting their succeeding load to 12 units. Probation is removed upon passing over 50% of units taken in the following term.

• Debarred: Students failing 75% or more of their academic load are debarred from the university for one (1) year; a second debarment results in permanent disqualification from readmission.

Parameter C (Inputs and Processes).pdf

2. IMPLEMENTATION

- □ List of evaluation measures used to ensure that the student's performance meets expected outcomes.
- □ Description of a system of validating and/or improving test and other evaluation instruments

1. Pre-Administration Test Construction & TOS Validation

• Table of Specifications (TOS) Mapping Pursuant to ISO Procedure USM-EDU-008 (Evaluating Learning Outcomes and Test Construction), summative test items (Midterm and Final Exams) are constructed based on a standardized Table of Specifications (USM-EDU-F25). The TOS aligns test item weight and distribution with course outcomes and Bloom's Taxonomy cognitive levels—ranging from Remembering and Understanding to Analyzing, Evaluating, and Creating.

2. Quantitative Item Analysis System

• Post-Test Item Analysis (USM-EDU-F30) Following the administration of multiple-choice summative examinations, test results are quantitatively evaluated using the Item Analysis Form (USM-EDU-F30).

• Validity and Difficulty Calibration The item analysis measures both the degree of difficulty and the validity/discriminating power of individual test items. Questions that prove defective, ambiguous, or misaligned are flagged for revision, re-wording, or replacement in future examination banks.

3. Periodic Review and Revision of Non-Test Evaluation Instruments

• Rubric Assessment Standardization Evaluation tools for non-test performance tasks—such as oral research defenses, feasibility study portfolios, accounting software simulations, and term papers—are governed by standardized rubrics. These evaluation instruments are reviewed and revised periodically by department committees to ensure consistent, objective grading.

5. Faculty Capacity Building in Test Construction

• Regular Training & Faculty Kits Faculty members undergo continuous professional development through departmental meetings (e.g., preparing Faculty Kits that include TOS, Item Analysis, and delivery monitoring forms) and national Outcomes-Based Education (OBE) assessment seminars.

Parameter C (Implementation).pdf

3. OUTCOMES

- Present and/or evidences that student’s academic performance is commendable.

Parameter C (Outcomes).pdf

4. BEST PRACTICES

- Cite as many best practices as you can on Parameter C. (Assessment of Academic Performance)

The Bachelor of Science in Applied Mathematics (BSAM) Program of the University of Southern Mindanao demonstrates its commitment to quality education through the implementation of varied, systematic, and outcomes-based assessment practices. Recognizing that assessment plays a vital role in determining students' mastery of mathematical concepts, analytical abilities, and problem-solving competencies, the program employs different evaluation methods that measure not only theoretical knowledge but also the practical application of mathematical principles.

- Diversified and Outcomes-Based Assessment Strategies – Utilization of formative and summative assessments, including quizzes, unit tests, midterm and final examinations, mathematical problem sets, skills demonstrations, oral examinations,

individual and group reports, and research projects to comprehensively evaluate students' knowledge and competencies.

- Systematic Preparation of Tables of Specifications (TOS) – Development of well-designed TOS to ensure alignment of examination items with course content, instructional time, and intended learning outcomes while assessing different cognitive levels based on Bloom's Taxonomy.
- Transparent and Objective Rubric-Based Assessment – Utilization of analytic scoring rubrics for mathematical problem solving, mathematical proofs, statistical analysis, and skills demonstrations to promote fairness, consistency, and transparency in evaluating student performance.
- Performance-Based Assessment through Skills Demonstrations – Conduct of individual boardwork and mathematical or statistical demonstrations to evaluate students' computational proficiency, logical reasoning, problem-solving strategies, and mathematical communication skills.
- Development of Higher-Order Thinking Skills – Integration of mathematical investigations, proofs, and nonroutine problem-solving activities that encourage critical thinking, analytical reasoning, creativity, and independent mathematical thinking.
- Authentic and Research-Based Assessment – Implementation of mathematical modeling, computational investigations, numerical simulations, and research projects that enable students to apply mathematical theories and techniques to real-world problems.
- Structured Oral Examinations and Research Defenses – Conduct of formal research presentations and thesis defenses before examination committees to assess students' research competencies, analytical reasoning, communication skills, and ability to justify their findings.
- Continuous Improvement of Assessment Instruments through Item Analysis – Evaluation of examination items based on difficulty indices to identify questions requiring review and provide a systematic basis for improving the quality of assessment tools.
- Assessment Responsive to Multiple Intelligences – Provision of varied learning and assessment activities, such as problem solving, graphical representations, oral presentations, collaborative projects, independent investigations, and boardwork, that engage students' logical-mathematical, visual-spatial, linguistic, interpersonal, and intrapersonal abilities.
- Systematic Monitoring and Evaluation of Academic Performance – Preparation of grade-analysis reports documenting passing, failing, incomplete, and dropped students to monitor academic achievement and identify areas for instructional improvement.
- Well-Documented Course Assessment Requirements – Utilization of approved course syllabi that establish assessment requirements and provide a structured basis for aligning instructional activities, course competencies, and expected learning outcomes.
- Recognition of Outstanding Academic Achievements – Demonstration of academic excellence through students' university-level distinctions, including the recognition of a BS Applied Mathematics graduate as the Class of 2025 Valedictorian and Summa Cum Laude.
- Active Participation and Recognition in Academic Competitions – Encouragement of students to demonstrate their mathematical and statistical competencies through participation in regional academic competitions, including the Regional Data Festival's Vest in Stat competition.
- Integration of Mathematical Research and Computational Applications – Engagement of students in research activities involving mathematical modeling,

statistical analysis, and computational tools such as Python to investigate practical problems and develop research-oriented competencies.

PARAMETER D – MANAGEMENT OF LEARNING

1. SYSTEM-INPUTS AND PROCESSES

- Present and/or cite policies on management of learning.

Policies on the management of learning in the Bachelor of Science in Applied Mathematics (BSAM) program at the University of Southern Mindanao (USM) are established in the USM Code (2024 Edition), ISO Quality Management System (QMS) procedures, and institutional guidelines.

1. Rules on Class Attendance (USM Code Book III, Art. 192)

• Attendance Mandate

Regular and punctual attendance in all scheduled classes and academic activities is expected as an integral part of course learning.

• Excuse Protocols

Students incurring valid absences (e.g., illness, family emergency, official school representation) must submit an excuse letter upon return. Medical certificates or written parental notices are required.

• Consecutive Absence Reporting

When a student incurs three (3) consecutive class absences, the instructor reports it to the Guidance Coordinator to notify parents/guardians.

• Unexcused Absences Limit

Unexcused absences reaching 20% or more of the total class hours in a semester result in an automatic failing grade (5.00).

2. Class Scheduling, Duration, and Delivery Modes (USM Code Book III, Art. 177–183)

• Semester Structure Regular semesters run for 18 weeks (54 contact hours per 3-unit lecture course).

• Schedule Automation & Supervision Class schedules are prepared by academic units and supervised via the automated system under the Office of the Director for Instruction (ODI).

• Flexible Learning The Office of the VPAA may require online synchronous or asynchronous classes for special circumstances.

• Waiting Time Policy Students are required to wait up to 15 minutes for both lecture and laboratory classes; if the instructor fails to arrive, students may leave.

• Make-Up Classes Missed class hours due to official travel or fortuitous events must be conducted via approved make-up classes, requiring a formal request form, class agreement, Dean's recommendation, and VPAA approval.

3. Class Size Regulations (USM Code Book III, Art. 178)

• Section Caps Standard undergraduate lecture classes are capped at a maximum of 45 students (enforced at up to 50 students with VPAA approval), while laboratory classes are capped at 30 students.

• Requested Courses Requested subjects carry a maximum class size of 20 students.

4. Student Conduct, Discipline, and Cleanliness (USM Code Book IV, Art. 218 & 257)

• Classroom Norms Discipline is maintained through democratic classroom practices, proper uniform/ID policies, and adherence to the Student Code.

• Academic Integrity Cheating on examinations or quizzes results in an automatic failing grade in the subject on the first offense.

• Cleanliness and Orderliness (7S Program) Room orderliness and campus cleanliness are maintained collaboratively by class officers, assigned student duty schedules, and 7S college and department champions.

5. Student Academic Load and Prerequisites (USM Code Book III, Art. 186 & 191)

• Unit Load Limits Student credit loads are prescribed by the official curriculum, up to a maximum cap of 30 units per semester if a student is graduating subject to approval by the VPAA (and 9 units in summer terms).

• Prerequisite Enforcement Strict adherence to subject sequencing and prerequisite requirements is enforced during registration.

Parameter D (Inputs and Process.pdf

2. IMPLEMENTATION

- Describe the system to ensure effective classroom management
  - maintaining classroom discipline;
  - monitoring students progress;
  - developing responsibility and initiative among student; and enhancing the pedagogical skills of the faculty

At the University of Southern Mindanao (USM), effective classroom management in the BS Applied Mathematics (BSAM) program is maintained through an integrated system of institutional policies, ISO Quality Management System (QMS) procedures, and student development frameworks:

1. Maintaining Classroom Discipline

• Norms of Conduct & Proper Decorum Classroom discipline is guided by Article 255 of the USM Code (Book IV) and the USM Faculty Manual, which mandate moral uprightness, mutual respect, proper grooming, and mandatory wearing of the official school uniform and ID card.

• Attendance & Punctuality Enforcements Attendance is monitored under Article 192 of the USM Code. Unexcused absences exceeding 20% of total contact hours in a semester result in an automatic failing grade (5.00), while students arriving after 15 minutes are marked absent.

• Academic Integrity & Classroom Order Academic dishonesty (e.g., cheating on exams/quizzes) carries an automatic failing grade on the first offense. Physical classroom orderliness and cleanliness are maintained through class officer leadership, student duty schedules, department 7S champions, and campus environmental initiatives like the University Gulayan Project.

2. Monitoring Student Progress

• Timely Releasing of Results and Transparent Feedback Pursuant to ISO Procedure USM-EDU-016 (Section 6.4.2) and Section 3.1.8 of the USM Faculty Manual, faculty members are mandated to check and return corrected papers and release major examination results not more than two (2) weeks after test administration

• Student Progress Tracking Instructors must inform students of the results of all assessment tools (quizzes, term examinations, performance tasks, and assignments) so that students can track their own progress against Intended Learning Outcomes (ILOs)

• Documented Examination Return To ensure institutional compliance and accountability.

• Advising & Grade Transparency: Designated academic advisers monitor student course sequencing, prerequisite compliance, and unit loads per USM-EDU-001. Faculty encode grades online via the Marka portal within 10 calendar days post-examinations. Faculty members encode midterm grades and final term grades.

• Independent Requirements Routing Progress in independent scholarly work is systematically monitored using thesis routing slips.

3. Developing Responsibility and Initiative Among Students

• Research Presentation & Academic Competitions Student initiative is fostered through competitive presentations at the annual CSM Student In-House Review.

4. Enhancing Pedagogical Skills of the Faculty

• ISO Classroom Observation System Under USM-EDU-002, Department Chairs and Deans conduct structured classroom observations followed by post-observation feedback conferences to refine instructional delivery.

• Linang Tao L&D Framework Faculty development is governed by the Linang Tao Learning and Development Management System (Linang Tao LDMS), ensuring every faculty member receives at least one L&D intervention annually.

• Continuing Professional Education by Professional Organizations Faculty regularly attend national Outcomes-Based Education (OBE) workshops.

Parameter D (Implementation).pdf

3. OUTCOMES

- Present evidence that learning is efficiently and effectively managed.

In the BS Applied Mathematics (BSAM) program at the University of Southern Mindanao (USM), student learning is efficiently and effectively managed through a systematic, ISO-certified outcomes-based framework that encompasses syllabus preparation, instructional delivery monitoring, TOS-based assessments, student progress tracking, faculty evaluations, and continuous quality improvement [144–148, 178].

Concrete evidence validating that learning is efficiently and effectively managed includes:

1. ISO-Certified Outcomes-Based Syllabus Preparation & Updating

- 100% OBE Alignment

  All course syllabi strictly follow a standardized ISO Outcomes-Based Education (OBE) format that maps Intended Learning Outcomes (ILOs) and Course Outcomes (COs) directly to Program Outcomes (POs), Program Educational Objectives (PEOs), and USM's VMGO.

- Systematic Review & Approval

  Syllabi are reviewed, revised, and approved every two years (or as needed) through a multi-tiered process involving the Department Curriculum Review Committee (DCRDC), College Curriculum Review Committee (CCRDC), Director for Instruction (ODI), and Vice President for Academic Affairs (VPAA).

2. Systematic Monitoring of Instruction and Classroom Observation

- ISO Quality Protocols

  Instructional delivery is governed by ISO Procedure USM-EDU-016 (Delivery of Instruction) and monitored under automated scheduling systems.

- Supervisory Observations

  Department Chairpersons and College Deans conduct periodic classroom observations (once per semester for permanent faculty and twice per semester for Contract of Service faculty) followed by post-observation evaluation conferences.

3. TOS-Designed Assessments and Rapid Feedback Mechanisms

- Table of Specifications (TOS)

  Major summative examinations (Midterms and Finals) are constructed using a pre-designed Table of Specifications (TOS - ISO Form USM-EDU-F25) mapped across Bloom's Taxonomy cognitive levels.

- Timely Result Releasing

  Corrected examination papers and assessment results are checked and returned to students within two (2) weeks after test administration.

- Item Analysis for Examinations

  Examination difficulty and validity are evaluated using the Item Analysis Form (USM-EDU-F30).

4. Commendable Student Academic Performance and Honors

- High Number of Academic Scholars

  Demonstrating instructional effectiveness, the BSAM program produced an increasing number of academic scholars in the past 3 years. Including Manuel Lisondra, a BSAM student who graduated as Class Valedictorian with Latin Honor as Summa Cum Laude and a GPA of 1.184. Every year, BSAM students participated in a yearly Philippine Statistics Quiz, an annual competition for young statistics whizzes, and the BSAM program produced numerous participants that garnered top places in the Provincial and Regional Championships.

5. High Retention, Graduation Rates, and Employability Outcomes

- Strong Student Retention

  Enrollment statistics across semesters show high retention rates from 2nd year to 3rd year and 3rd year to 4th year, with third-year shifters successfully graduating on time.

- High Employability & Employer Satisfaction

  The Tracer Study of Batch 2022 Graduates of USM recorded a 96.92% relative employment rate (63 out of 65 survey respondents employed), while recent university tracer project reports recorded a 100% relative employment rate. Furthermore, the BSMA Employer Feedback Survey revealed an Overall Grand Mean score of 4.4490 out of 5.00 ("Excellent") across 38 competency indicators and an overall employer satisfaction rating of 8.85 out of 10.00.

Parameter D (Outcomes).pdf

4. BEST PRACTICES

- Cite as many best practices as you can on Parameter D. (Management of Learning)

The Bachelor of Science in Applied Mathematics Program demonstrates the following best practices in ensuring the efficient and effective management of student learning:

- Institutionalized Learning Management Policies – Implementation of established university policies governing student attendance, class schedules, academic responsibilities, student discipline, and classroom management to ensure an organized and conducive learning environment.
- Comprehensive Student Orientation and Policy Dissemination – Conduct of university, college, and departmental orientations to familiarize students with academic regulations, institutional policies, student services, and their responsibilities as members of the academic community.
- Systematic Academic Planning and Scheduling – Preparation and implementation of an approved University Academic Calendar that ensures the proper scheduling and coordination of classes, examinations, academic activities, and other student-related programs.
- Outcomes-Based Instructional Planning – Development and utilization of standardized course syllabi that align Intended Learning Outcomes (ILOs), Course Outcomes (COs), Program Outcomes (POs), and Program Educational Objectives (PEOs), ensuring coherence between teaching, learning activities, and assessment.
- Regular Review and Enhancement of Course Syllabi – Periodic evaluation and updating of course syllabi to maintain curriculum relevance, incorporate current learning resources, and continuously improve instructional delivery.
- Standardized and Quality-Assured Instructional Delivery – Implementation of ISO-based instructional procedures that provide clear guidelines for lesson preparation, classroom management, attendance monitoring, and effective utilization of instructional materials.
- Regular Classroom Observation and Instructional Monitoring – Conduct of systematic classroom observations by department chairpersons and college administrators, complemented by post-observation feedback to enhance teaching effectiveness and professional development.
- Integration of Technology in Learning Management – Utilization of the university's Virtual Learning Environment (VLE) and other digital platforms to support instructional delivery, facilitate learning activities, and monitor student engagement.

- Effective Management of Class Size and Instructional Time – Observance of prescribed class-size limits, academic loads, and instructional contact hours to provide manageable learning conditions and promote meaningful faculty-student interaction.
- Democratic and Student-Centered Classroom Management – Promotion of mutual respect, responsible behavior, active student participation, and adherence to established disciplinary procedures to maintain a positive and inclusive learning environment.
- Student Involvement in Maintaining Cleanliness and Orderliness – Encouragement of class officers and assigned students to participate in maintaining the cleanliness and organization of classrooms, laboratories, and other learning facilities, fostering discipline, cooperation, and shared responsibility.
- Promotion of Environmental Responsibility – Implementation of institutional policies on cleanliness, waste management, and regulation of single-use plastics to develop environmental awareness and responsible practices among students.
- Development of Independent and Self-Directed Learning – Provision of individual assignments, mathematical problem-solving activities, reports, and projects that encourage students to develop initiative, analytical thinking, self-discipline, and responsibility for their own learning.
- Integration of Research and Practical Applications – Encouragement of independent research, thesis preparation, mathematical investigations, and special projects that allow students to apply mathematical theories and techniques to practical and real-world problems.
- Systematic Monitoring of Student Academic Performance – Maintenance of standardized class records, assessment results, and academic performance reports to monitor student progress and provide a basis for instructional improvement.
- Timely Feedback and Transparent Grade Consultation – Implementation of procedures for returning checked assessment requirements and conducting student grade consultations to promote transparency, accountability, and continuous learning improvement.
- Efficient and Technology-Assisted Grade Management – Utilization of the university's Marka portal for electronic encoding and submission of grades, supporting accurate, organized, and efficient academic record management.
- Comprehensive Faculty Performance Evaluation – Implementation of supervisory evaluations, Student Evaluation of Teaching (SET), and faculty self- and peer-evaluation mechanisms to assess instructional competence and identify areas for professional growth.
- Continuous Improvement of Teaching and Learning – Utilization of classroom observation results, student feedback, faculty evaluations, and academic performance records to strengthen instructional practices and improve the overall learning experience.

PARAMETER E – GRADUATION REQUIREMENTS

1. SYSTEM-INPUTS AND PROCESSES

- Present and/or cite policies on program’s academic and graduation requirements.

  Institutional policies governing academic and graduation requirements for the Bachelor of Science in Applied Mathematics (BSAM) program of the University of Southern Mindanao (USM) are provided in the USM Code (2024 Edition, Book III), CHED Memorandum Order (CMO) No. 48 s. 2017, and department guidelines:

1. Program Academic Requirements

• Total Credit Unit Requirement and Strict Prerequisite Sequencing

The USM BSAM curriculum requires the completion of 151 total credit units. This includes 36 General Education units, 14 PE/NSTP units, 11 Core units, 84 Cognate/Major units, and 6 institutional/additional units.

• Academic Unit Load Limits

The standard semester load follows the prescribed curriculum plan up to a maximum capacity of 27 units per regular semester for the 4-year BSAM program; and maximum capacity of 28 units per regular semester and 9 units during summer for the 3-year BSAM program.

• Independent/Group Research

Independent/group thesis outline, conduct, and manuscript writing (AMath UT 01, AMath UT 02 & AMath UT 03) culminates in a formal oral panel defense.

• Maximum Residency Rule (MRR)

The maximum allowable residency to complete the 4-year degree is computed by multiplying the program duration by 1.5 (6 academic years). Students exceeding MRR must apply for readmission and re-enroll major courses under the latest curriculum.

• Policies on Academic Delinquency:

- Warning: Students incurring failing grades in 25% to 49% of enrolled units limits the succeeding semester load to 18 units.

- Probation: Students incurring failing grades in 50% to 75% of enrolled units restricts the succeeding load to 12 units.

- Debarment: Students failing 75% or more of the semester load results in a one-year debarment from the university; a second debarment leads to permanent disqualification.

2. Graduation Requirements

• Complete Coursework, Academic Deficiencies and Documents

Candidates for graduation must satisfactorily complete all 151 credit units. All academic deficiencies and records must be cleared not later than five (5) weeks before the end of the student's final semester.

• Multi-Tiered Governance Approval

Candidates for graduation must be evaluated and formally endorsed by the College Academic Council, approved by the University Academic Council, and granted final conferment by the USM Board of Regents (BOR).

• Financial & Administrative Clearance

Candidates for graduation must accomplish an official Final Clearance clearing all academic, financial, library, and property accountabilities prior to the release of their Transcript of Records (TOR) and Diploma.

• Graduation with Honors (Latin Honors)

Candidates for graduation who are prospective to graduate with honors are evaluated and are awarded with Latin Honors based on their scholastic records’

Cumulative Grade Weighted Average (GWA) computed to three decimal places without rounding off:

Summa Cum Laude: 1.000 – 1.249

Magna Cum Laude: 1.250 – 1.499

Cum Laude: 1.500 – 1.750

Honor candidates must finish the program within the regular prescribed period, carry no failing grades or unremoved "INC" notations, and maintain at least two years (50%) of residency at USM.

2. IMPLEMENTATION

- Describe the Program's academic and graduation requirements and how they are disseminated.

  All programs of the University of Southern Mindanao (USM) academic and graduation requirements are systematically disseminated to students, parents/guardians, and academic personnel through a combination of orientation events, official publications, instructional tools, advisory channels, and digital platforms:

  1. Pre-Enrollment & Freshmen Orientations

  The Mathematics and Statistics Department and the university conduct annual pre-enrollment orientations for incoming freshmen and their parents/guardians. These orientations provide detailed presentations of the BSAM curriculum map, academic policies, grading scale, course requirement categories, retention rules, and graduation criteria.

  2. University Freshmen Orientation Week

  The University Freshmen Orientation Week at the University of Southern Mindanao (USM) is an annual institutional event designed to welcome new students and facilitate their smooth transition into university life.

  Key components of the orientation week include:

  • College & Department Orientations: Academic units (such as the Mathematics and Statistics Department) hold targeted orientation sessions for incoming freshmen and their parents/guardians. These sessions present the program curriculum, academic policies, grading systems, course requirements, and retention rules.

  • University Academic Policies & Student Conduct: Students are oriented on institutional regulations, including USM's Vision, Mission, Goals, and Objectives (VMGO), quality policy statement, rules on student discipline, and their duties provided in the Student Code and Student Handbook.

  • Office of Student Affairs (OSA) Services: Representatives from OSA introduce essential student support services, including guidance and counseling, health and medical services, housing, scholarship programs, and student organization activities.

  • University Convocation: The orientation features a formal university-wide convocation assembly where university administrators, faculty, and student leaders address the incoming batch.

3. Distribution of the Student Handbook

Published by the Office of Student Affairs (OSA), the official USM Student Handbook is printed and distributed to all students upon admission. It serves as an authoritative guide codifying academic regulations, grading rules, student discipline, and graduation requirements.

4. University Students and Parents Consultation before Graduation

The University Students and Parents Consultation before Graduation, organized by the Office of Student Affairs (OSA), is an institutional orientation and advisory session held prior to commencement to guide graduating students and their parents/guardians through the final transition toward degree completion. The orientation includes briefing on graduation & commencement protocols where OSA presents detailed guidelines regarding baccalaureate services, commencement schedules, venue rules, and prescribed academic attire.

5. Academic Advising & Consultation (USM-EDU-001)

Designated faculty advisers guide students during registration periods and scheduled consultation hours. Advisers monitor enrollees' prerequisite compliance, allowable credit loads, course sequencing, and progress toward meeting graduation standards.

6. Digital Portals & Social Media Announcements Academic prospectuses, course catalogues, schedule changes, and official policy notices are published through the Student Portal (studentsportal.usm.edu.ph), the online grading portal (Marka), department bulletin boards, and official university social media channels.

7. Deficiency Notifications for Graduating Students Prior to the final semester, the Admission and Records Office (ARO) audits student scholastic records and publishes a tentative list of prospective candidates for graduation. Any remaining academic or administrative deficiencies are directly communicated to students and College Deans via formal advisories to ensure prompt resolution before graduation.

3. OUTCOMES

- Present a comparison of students’ who are able to graduate on time with the total number of student enrollees.

BSAM Enrollment and Graduates Data

Academic Year	Semester	Enrolled			Graduated
		2ND YEAR	3RD YEAR	4TH YEAR	
A.Y. 2023-2024	1st Semester	24	19	24	13
	2nd Semester	19	19	24	
A.Y. 2024-2025	1st Semester	36	18	29	19
	2nd Semester	35	23	24	
A.Y. 2025-2026	1st Semester	32	32	26	12
	2nd Semester	33	33	24	

4. BEST PRACTICES

- Cite as many best practices as you can on Parameter E (Graduation Requirements Learning)

  The Bachelor of Science in Applied Mathematics (BSAM) program of the University of Southern Mindanao (USM) institutional best practices ensure that Graduation Requirements are managed efficiently, transparently, and effectively such as:

  • Independent/Group Research (Research Defenses)

  Students must successfully fulfill from outline, conduct, and manuscript writing prior to graduation that has to undergo formal oral panel defenses, manuscript indexing and submissions, and research summit presentations.

  • Multi-Stage Governance Review & Approval

  Candidates for graduation have to undergo a rigorous, multi-tiered verification process. Recommendations originate from the Department and College Academic Council, thus advance to the University Academic Council for endorsement, and receive final approval and conferment of degree from the USM Board of Regents (BOR).

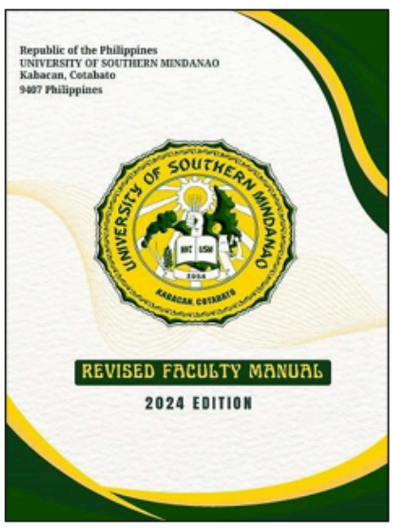
  • Pre-Graduation Student & Parent Consultations

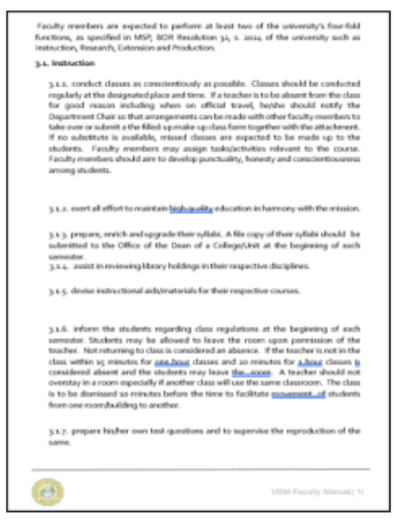
  Organized by the Office of Student Affairs (OSA), a specialized pre-graduation orientation is conducted for graduating seniors and their parents/guardians. This session clarifies commencement protocols, academic gown guidelines, career transition services, and the administrative clearance workflow.

PARAMETER F – ADMINISTRATIVE SUPPORT FOR EFFECTIVE INSTRUCTION

1. SYSTEM-INPUTS AND PROCESSES

- Present and/or cite policies on substitution or special arrangements whenever a faculty is on leave or on official business/time;
  - Policies on substitution or special arrangements during faculty leave are provided in Articles 3 and 7 of the Revised Faculty Manual, 2024 Edition.





Faculty members are expected to perform at least two of the university's four-fold functions, as specified in MSP, BOR Resolution 32, s. 2024 of the university such as Instruction, Research, Extension and Production.

3.1. Instruction

3.1.1. conduct classes as conscientiously as possible. Classes should be conducted regularly at the designated place and time. If a teacher is to be absent from the class for good reason including when on official travel, he/she should notify the Department Chair so that arrangements can be made with other faculty members to take over or submit a the filled-up make up class form together with the attachment. If no substitute is available, missed classes are expected to be made up to the students. Faculty members may assign tasks/activities relevant to the course. Faculty members should aim to develop punctuality, honesty and conscientiousness among students.

3.1.2. exert all effort to maintain high quality education in harmony with the mission.

3.1.3. prepare, enrich and upgrade their syllabi. A file copy of their syllabi should be submitted to the Office of the Dean of a College/Unit at the beginning of each semester.

3.1.4. assist in reviewing library holdings in their respective disciplines.

3.1.5. devise instructional aids/materials for their respective courses.

3.1.6. inform the students regarding class regulations at the beginning of each semester. Students may be allowed to leave the room upon permission of the teacher. Not returning to class is considered an absence. If the teacher is not in the class within 15 minutes for one hour classes and 20 minutes for 3 hour classes is considered absent and the students may leave the room. A teacher should not overstay in a room especially if another class will use the same classroom. The class is to be dismissed 10 minutes before the time to facilitate movement of students from one room/building to another.

3.1.7. prepare his/her own test questions and to supervise the reproduction of the same.



Chapter 7

7. FACULTY BENEFITS, COMPENSATION, PRIVILEGES, AWARDS, AND RIGHTS

7.1. Privileges

7.1.1. Leave Privileges

The provisions and policies promulgated herein are specified in Civil Service Commission, Rule XVI of the Omnibus Rules on Leave, Implementing Book V of EO 292 and pursuant to CSC MC No. 5, s. 2021 which cover the provisions of the civil service rules on maternity leave, paternity and adoption leave.

7.1.1.1. Teacher's Leave

Faculty members, without designation, shall not be entitled to the usual vacation and sick leave credits but to proportional vacation pay (PVP) of 20 days of summer vacation plus 14 days of Christmas vacation. A teacher who has rendered continuous service in a school year without incurring absences without pay of not more than a ½ days is entitled to 85 days of proportional vacation pay.

Faculty members on teacher's leave basis who have summer load are entitled to honoraria based on BOR Resolution No. 46, s 2009.

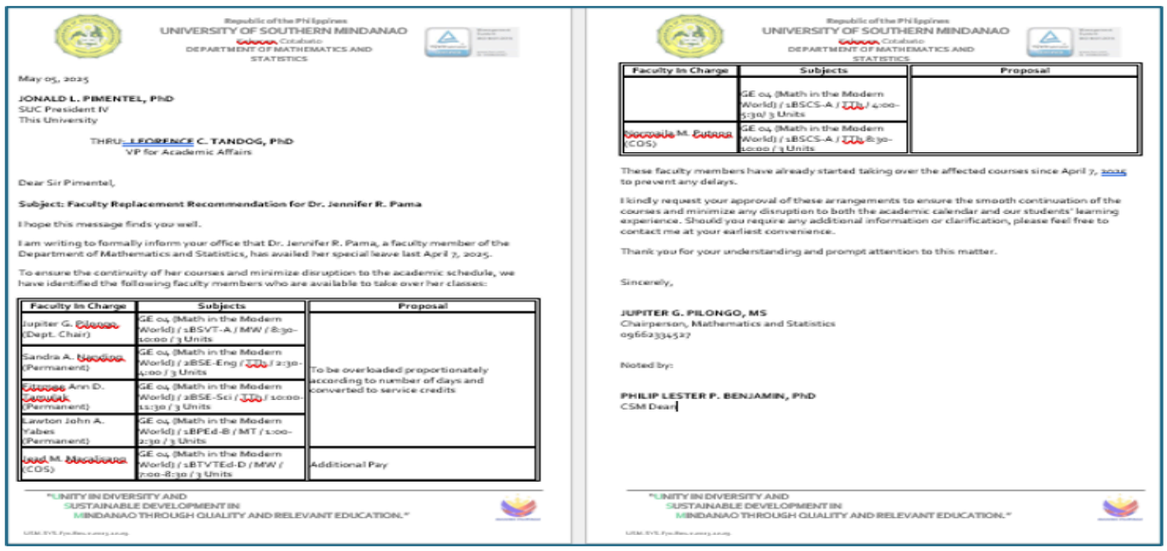
7.1.1.2. Cumulative Leave

Granted to faculty members who are regularly performing administrative function whether permanent or temporary. After at least six months of continuous, faithful and satisfactory service the faculty shall be entitled to 15 days vacation leave and 15 days sick leave of absence with full pay, exclusive of Saturdays, Sundays and holidays of each year of service. Cumulative leaves not taken within the calendar year in which it was earned may be carried over to the succeeding year. The University President may, in his/her discretion, authorize the computation of the salary that would be received during the period of the vacation and sick leaves of any faculty member. Any faculty member who shall voluntary resign or be separated from the service through no fault of his own shall be entitled to a commutation of all accumulated leaves to his credit.

A proposal communicated by the previous Department Chair, Dr. Jupiter G. Pilongo, to the Office of the University President Dr. Jonald L. Pimentel channeled through

the Office of the Vice President for Academic Affairs, Dr. Florence C. Tandog, regarding the special arrangement of classes of one faculty of the Department of Mathematics and Statistics, Dr. Jennifer R. Pama who availed of Special Leave due to a major surgical operation.

Department memos were also issued by the current Department Chair, Prof. Sandra A. Nanding to designated OIC Chairs during her absence, both on official travels and other leave of absences.



UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Cotabato
DEPARTMENT OF MATHEMATICS AND STATISTICS

May 05, 2025

JONALD L. PIMENTEL, PhD
SUC President IV
This University

THRU: FLORENCE C. TANDOG, PhD
VP for Academic Affairs

Dear Sir Pimentel,

Subject: Faculty Replacement Recommendation for Dr. Jennifer R. Pama

I hope this message finds you well.

I am writing to formally inform your office that Dr. Jennifer R. Pama, a faculty member of the Department of Mathematics and Statistics, has availed her special leave last April 7, 2025.

To ensure the continuity of her courses and minimize disruption to the academic schedule, we have identified the following faculty members who are available to take over her classes:

Faculty In Charge	Subjects	Proposal
Jupiter G. Pilongo (Dept. Chair)	GE 04 (Math in the Modern World) / 1BSVT-A / MW / 8:30-10:00 / 3 Units	To be overloaded proportionately according to number of days and converted to service credits
Sandra A. Nanding (Permanent)	GE 04 (Math in the Modern World) / 2BSE-Eng / TTh / 2:30-4:00 / 3 Units	
Clarence Ann D. Sagayab (Permanent)	GE 04 (Math in the Modern World) / 2BSE-Sci / TTh / 10:00-11:30 / 3 Units	
Lawton John A. Yabes (Permanent)	GE 04 (Math in the Modern World) / 1BPEd-B / MT / 1:00-2:30 / 3 Units	
Jayd M. Macalawas (COS)	GE 04 (Math in the Modern World) / 1BTVTEd-D / MW / 7:00-8:30 / 3 Units	Additional Pay

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Faculty In Charge	Subjects	Proposal
	GE 04 (Math in the Modern World) / 1BSCS-A / TTh / 4:00-5:30 / 3 Units	
Jayd M. Macalawas (COS)	GE 04 (Math in the Modern World) / 1BSCS-A / TTh 8:30-10:00 / 3 Units	

These faculty members have already started taking over the affected courses since April 7, 2025 to prevent any delays.

I kindly request your approval of these arrangements to ensure the smooth continuation of the courses and minimize any disruption to both the academic calendar and our students' learning experience. Should you require any additional information or clarification, please feel free to contact me at your earliest convenience.

Thank you for your understanding and prompt attention to this matter.

Sincerely,

JUPITER G. PILONGO, MS
Chairperson, Mathematics and Statistics
09662334527

Noted by:

PHILIP LESTER P. BENJAMIN, PhD
CSM Dean

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UNIVERSITY OF SOUTHERN MINDANAO
COLLEGE OF SCIENCE AND MATHEMATICS
Department of Mathematics and Statistics

Memorandum No: 6
Series of 2026

TO: **Dr. Jupiter G. Pilongo**
SUBJECT: **Designation as OIC Chair**
DATE: **October 8, 2026**

You are hereby designated as OIC Chair of the Department of Mathematics and Statistics on **October 12, 2026**.

As OIC Chair, you will be responsible for the day-to-day operations of the department. Please keep me informed of the development in my absence.

For information and compliance.

SANDRA A. NANDING
Chair

UNIVERSITY OF SOUTHERN MINDANAO
COLLEGE OF SCIENCE AND MATHEMATICS
Department of Mathematics and Statistics

Memorandum No: 4
Series of 2026

TO: **Ms. Hannah Faith Jane A. Palmos**
SUBJECT: **Designation as OIC Chair**
DATE: **June 10, 2026**

You are hereby designated as OIC Chair of the Department of Mathematics and Statistics on **June 11, 2026**.

As OIC Chair, you will be responsible for the day-to-day operations of the department. Please keep me informed of the development in my absence.

For information and compliance.

SANDRA A. NANDING
Chair

UNIVERSITY OF SOUTHERN MINDANAO
COLLEGE OF SCIENCE AND MATHEMATICS
Department of Mathematics and Statistics

Memorandum No: 33
Series of 2025

TO: **Mr. Lawton John A. Yabes**
SUBJECT: **Designation as OIC Chair**
DATE: **November 26, 2025**

You are hereby designated as OIC Chair of the Department of Mathematics and Statistics on **November 28, 2025**.

As OIC Chair, you will be responsible for the day-to-day operations of the department. Please keep me informed of the development in my absence.

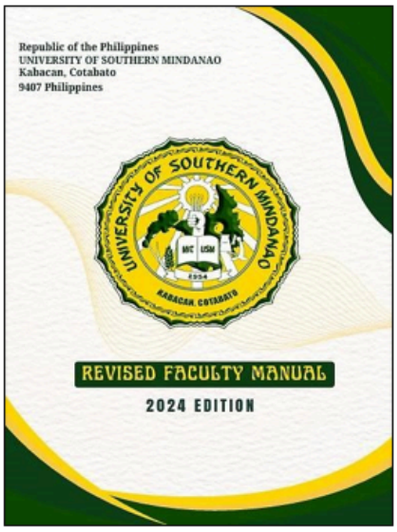
For information and compliance.

SANDRA A. NANDING
Chair

- Present and/or cite policies on giving awards and/or recognition of faculty and students with outstanding achievements; and

The University of Southern Mindanao holds annual Gawad Uliran sa Serbisyong Mahusay (Gawad USM), the customized Program on Awards and Incentive for Service Excellence (PRAISE) of USM for employees, researchers, academic programs, and university units as provided in Chapter 7, Section 3 of the Revised Faculty Manual, 2024 Edition. The awards were given under five categories: Gawad Pamumuno, Special Awards, Gawad Karunungan, Ulirang Kawani, and Ulirang Sangay.

The guidelines of Gawad USM were approved by the Civil Service Commission (CSC).







The Gawad USM guidelines was also approved by the USM Board of Regents through the BOR Resolution No. 120, Series of 2021, along with the first page of the Gawad USM guidelines are presented as follows:





Click link to read full guidelines:

CSC (Gawad USM PRAISE) Guidelines.pdf

- Present and/or cite policies on supervision/monitoring and evaluation of faculty performance.

Institutional policies on the supervision, monitoring, and evaluation of faculty performance are provided in the USM Code (2024 Edition), the USM Revised Faculty Manual (2024 Edition), and ISO Quality Management System (QMS) instructional procedures. Below is a brief enumeration of these policies and mechanisms:

1. Administrative & Supervisory Oversight Policies

• Primary Supervisory

Jurisdiction Under the USM Code, College Deans and Department Chairpersons exercise primary jurisdiction over monitoring course syllabus preparation, subject

loading within faculty fields of specialization, daily class attendance, and documentary submissions.

• Instructional Delivery Oversight The Office of the Director for Instruction (ODI) coordinates directly with academic heads to monitor the timely delivery of instruction according to approved course syllabi.

2. ISO Classroom Observation System

• Scheduled Classroom Visits (USM-EDU-002 & USM-EDU-016):

Teaching delivery is directly monitored through structured, scheduled classroom visits conducted once per semester for permanent/regular faculty and twice per semester for Contract of Service (COS) / temporary faculty.

3. Multi-Point Performance Evaluation System Faculty performance across instructional functions is evaluated each semester across multiple evaluative perspectives [125, 131–133]:

• Supervisory Evaluation of Faculty (SEF):

Department Chairs and Deans evaluate faculty members using standardized supervisory rating instruments.

• Student Evaluation of Teaching (SET):

Enrolled students evaluate their instructors online every semester across teaching clarity, subject mastery, and classroom management [126, 132–133].

• Self & Peer Evaluation: Tracked continuously through self and peer rating forms as well as entries in the Learning and Performance Journal (LEAPER) and Enhanced Daily Time Records (EDTR).

4. Institutional Performance Management & Advancement Frameworks

• Strategic Performance Management System (SPMS) & IPCR

Faculty performance across the university's four-fold functions (Instruction, Research, Extension, and Production) is evaluated using the Individual Performance Commitment and Review (IPCR). A rating of at least "Very Satisfactory" across the last two rating periods is required for promotion eligibility.

• Dynamic Candidates Assessment System (DYCAS)

Integrates IPCR ratings, LEAPER journals, L&D activities, and Gawad USM scores into a 9-box potential performance matrix that serves as the central basis for recruitment, placement, and promotional step movements.

• PROFESS System

Governs professorial rank accreditation across designated career pathways (such as Teaching and Learning or Research and Discovery).

5. Evaluation Feedback, Capability Building, and Recognition

• Development Acknowledgment Forms

Summaries of SET and SEF evaluation ratings are formally issued to faculty members to guide self improvement and address specific competency gaps.

• Linang Tao L&D System

Evaluation results and Training Needs Analyses (TNA) feed into the Linang Tao Learning and Development Management System (Linang Tao LDMS), ensuring that every faculty member receives at least one L&D intervention per year.

• GAWAD USM / PRAISE System Outstanding evaluation scores, copyrighted instructional materials, and published research are rewarded under Civil Service Commission (CSC) PRAISE guidelines through Gawad Uliran sa Serbisyong Mahusay (GAWAD USM).

2. IMPLEMENTATION

- Describe the system of supervision of faculty performance.

  The system of supervision for faculty performance at University of Southern Mindanao (USM) is governed by a multi-tiered, ISO-certified Quality Management System framework, the USM Code, and the USM Revised Faculty Manual. The primary components of the supervisory system are structured as follows:

  • Administrative & Supervisory Oversight
  College Deans and Department Chairpersons exercise primary supervisory authority over faculty members by monitoring course syllabus preparation, subject loading within fields of specialization, daily class attendance, and required documentary submissions. The Office of the Director for Instruction (ODI) coordinates overall instructional delivery across academic units.

  • ISO Classroom Observation System (USM-EDU-002 & USM-EDU-016)
  Teaching delivery is directly monitored through structured, scheduled classroom visits. Permanent/regular faculty members are observed once per semester, while Contract of Service (COS) / temporary faculty members are observed twice per semester. Every observation is followed by an immediate post-observation feedback conference to review teaching methods and recommend areas for improvement.

  • Multi-Point Performance Evaluation System
  Faculty performance across instructional functions is evaluated each semester from multiple perspectives:
  - Supervisory Evaluation of Faculty (SEF):
    Conducted by Department Chairs and Deans using standardized rating tools.
  - Student Evaluation of Teaching (SET):
    Conducted online by enrolled students to evaluate instructional clarity, subject mastery, and classroom management.
  - Self and Peer Evaluations:
    Tracked continuously alongside daily activities recorded in the Learning and Performance Journal (LEAPER) and Enhanced Daily Time Records (EDTR).

  • Integration into HR & Development Frameworks Evaluation ratings feed into the Individual Performance Commitment and Review (IPCR) under the Strategic Performance Management System (SPMS) and the Dynamic Candidates Assessment System (DYCAS) 9-box potential-performance matrix. Identified competency gaps drive targeted interventions through the Linang Tao Learning and Development Management System (LDMS) and inform promotions and merit awards.

- Describe the faculty performance evaluation system.

□ The Program's Faculty Performance Evaluation results in the last 6 terms

	1st		2nd		1st		2nd		1st		2nd	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Outstanding	0		0		0		0		0		1	5
Very Satisfactory	18	100	18	100	18	100	18	100	17	94	20	95
Satisfactory	0	0	0	0	0	0	0	0	1	6	0	0
Fair	0	0	0	0	0	0	0	0	0	0	0	0
Poor	0	0	0	0	0	0	0	0	0	0	0	0
Total	18	100	18	100	18	100	18	100	18	100	21	100

 Describe the strategies to recognize students with exemplary performance/achievements

Students' exemplary performance and achievements under Bachelor of Science in Applied Mathematics (BSAM) program at University of Southern Mindanao (USM), are recognized and encouraged through a multi faceted institutional framework:

• Inclusion in Honor Rolls and Academic Awards:
- Semester Academic Awards:
  Students achieving top General Weighted Averages (GWAs) are recognized each term as University Scholars (GWA 1.000–1.500) or College Scholars (GWA 1.510 1.750).
- University Recognition Program:
  Annual recognition ceremonies honor qualifying academic scholars across degree programs.
- Graduation with Honors (Latin Honors):
  High-performing graduating seniors are conferred Summa Cum Laude (1.000–1.249), Magna Cum Laude (1.250–1.499), or Cum Laude (1.500–1.750) based on cumulative GWA computed to three decimal places without rounding off.

• Annual Gawad Parangal for Students
Organized by the Office of Student Affairs (OSA) pursuant to Article 216 of the USM Code, this annual university-wide event confers merit awards for outstanding student achievements. Recognized categories include Most Outstanding Research Project, Most Student Leader/Journalist/Legislator, and Most Outstanding Student Organization.

• Research Competitions and In-House Reviews
Outstanding student research outputs are recognized and rewarded through competitive platforms like the annual University Student In-House Review, where top-performing student research teams earn titles such as Best Paper, 1st Runner-Up, and 2nd Runner-Up.

• Grant of Academic Scholarships and Financial Subsidies Exemplary academic standing qualifies students for institutional tuition scholarships, entrance topnotcher incentives, and external donor-sponsored scholarship grants managed by the Scholarship and Financial Assistance Department.

• Awarding of Medals, Certificates, and Leadership Opportunities:
- Plaques, Medals, and Certificates of Merit:

Conferred during convocations, recognition days, and graduation ceremonies.

- Special Leadership Privileges:
  Top students and officers receive priority selection for student mobility programs, leadership bootcamps (such as USM LEAP), and university-sponsored participation in off campus academic conventions such Philippine Statistics Quiz (PSQ) and Vest in Stat Competition.

□ List of recognition/awards given to students with exemplary academic and non-academic performance/achievements

Awards/Recognition	Sponsor/Donors
USM Latin Honors (Summa Cum Laude) - Manuel Lisondra (Batch 2025) Manuel Lisondra was also the Class Valedictorian with a General Weighted Average (GWA) of 1.184.	USM
USM Latin Honors (Cum Laude) - Janna Angel L. Paderes (Batch 2026)	USM
USM RDE In-House Review Science Paper Presentation (First Place) - Manuel Lisondra	Research, Development, and Extension (RDE), USM
Provincial Philippine Statistics Quiz (PSQ) 1. Adrian Untal - 2nd Runner-Up (2025) 2. Bandar Khanakan - 2nd Runner-Up (2026)	USM, Philippine Statistics Authority
Regional Philippine Statistics Quiz (PSQ): Bandar Khanakan - 2nd Runner-Up (2026)	USM, Philippine Statistics Authority
Applied Math Colloquium 2026 Best Presenters 1. Jhan Paul Chiva – "A Comparative Numerical Study of Area Estimation Methods for Irregular Regions Using Grid-Based, Monte Carlo, and Shoelace Approaches" 2. Germaine Velarde Senina – "Fair Italian Domination in Some Special Graphs"	Department of Mathematics and Statistics, USM
Regional Data Festival-Mindanao Cluster (Vest in Stat Competition Winner) - Desiree G. Victoria	Regional Data Festival Organizers l-Mindanao Cluster USM

 Describe Program outcomes in the last 3-5 years

□ Graduates' Performance in Licensure Examinations (*if applicable)*

Date of Examination	No. of Graduates Who Took the Examination	National Passing Percentage	Institution's Passing Percentage	Percentage Difference (+/-)
N/A	N/A	N/A	N/A	N/A

□ Top-Performing Graduates in Licensure Examination

Name of Graduates	Year Graduated	Rating	Rank in the Licensure Examination
N/A	N/A	N/A	N/A

□ Employability of Graduates

School Year	Number of Graduates Surveyed	No. of Graduates' Employed Related to Specialization	Percentage of Graduates' Employed
2023-2024	13	9	69.23%
2024-2025	19	15	78.95%
2025-2026	12	9	75.00%

 Describe the graduates' employment pattern (e.g. employer, jobs taken, span of time to get employed, etc.)

The employability of Bachelor of Science in Applied Mathematics (BSAM) graduates of University of Southern Mindanao (USM) is highly favorable, exceeding institutional accreditation benchmarks across official tracer studies and employer evaluation reports. Results from a Tracer Study conducted to 15 USM BS Applied Mathematics graduates provide concrete quantitative evidence of graduate outcomes, with 12 out of 15 surveyed graduates being employed.

Based on the BS Applied Math Employment Feedback Report, the employment pattern of BSAM graduates is increasing, highly favorable and exceeding institutional accreditation benchmarks across official tracer studies and employer evaluation reports. Based on the conducted Tracer Study, these graduates are employed in Government / Public Sector, Private Sector, Education & Academe, and are self-employed.

Current employment status	Frequency	Percentage
Working / employed, including working while studying	11	73.33%
Self-employed	0	0.00%
No work / not employed and not studying	4	26.67%
Total	**15**	**100.00%**

 Describe feedback mechanism from employers regarding the graduates' performance.

The feedback mechanisms about performance of BS Applied Mathematics graduates in the workplace as well as other graduates of University of Southern Mindanao are strategized through two institutional mechanisms: (1) Graduate Tracer Studies, and (2) Employer Feedback Survey.

1. Graduate Tracer Studies

The university conducts periodic tracer studies to monitor alumni employment outcomes, career progression, and labor market demand. From the previous Tracer Study conducted, BS Applied Mathematics graduates achieved 80.0% relative employment rate, exceeding the institutional accreditation benchmarks across official tracer studies and employer evaluation reports. Graduates are employed across diverse economic sectors, primarily in government service, academe, and private sectors.

2. Employer Feedback Survey Mechanism

Administered to direct supervisors across diverse public and private sectors, the Employer Feedback Survey evaluates graduates' workplace competencies across 38 indicators in 6 domains using a 5-point scale, alongside a 10-point overarching satisfaction index.

3. OUTCOMES

- Present evidence that faculty and students' have commendable performance as a result of administrative support.

Eleven faculty members from the Department of Mathematics and Statistics, Dr. Jonald L. Pimentel, Dr. Florence C. Tandog, Dr. Debbie Marie Verzosa, Dr. Philip Lester, Benjamin, Dr. Leonard M. Paleta, Dr. Anna Jean S. Garcia, Dr. Daryl Mae C. Mamon, Dr. Jupiter G. Pilongo, Dr. Jeaneth R. Licaros, Prof. Rowel P. Madio, and Prof. Roel S. Valenton received awards such as Intellectual Property Award and Publication Award during the **PRAISE Special Awards** ceremony held last **21 September 2026.** Also, Dr. Debbie Marie Verzosa ranked 3rd among the University of Southern Mindanao Top Researchers.

Desiree G. Victoria, together with her coach, Dr. Jonald L. Pimentel, won the Vest in Stat Competition during the Regional Data Festival - Mindanao Cluster conducted at Cagayan de Oro City held last October 14-15, 2024.

Also, Bandar Khanakan won 2nd Runner-Up and 1st Runner-Up during the Provincial and Regional Levels, respectively, of the Philippine Statistics Quiz (PSQ) 2026 while Adrian Untal won 2nd Runner-Up during Provincial Philippine Statistics Quiz (PSQ) 2025.







Manuel Lisondra won 1st Place during the 2025 RDE In-House Review, while Jhan Paul Chiva, whose research titled "A Comparative Numerical Study of Area Estimation Methods for Irregular Regions Using Grid-Based, Monte Carlo, and Shoelace Approaches"; and Germaine Velarde Senina , whose research titled "Fair Italian Domination in Some Special Graphs", won Best Presenters during the Applied Math Colloquium 2026.

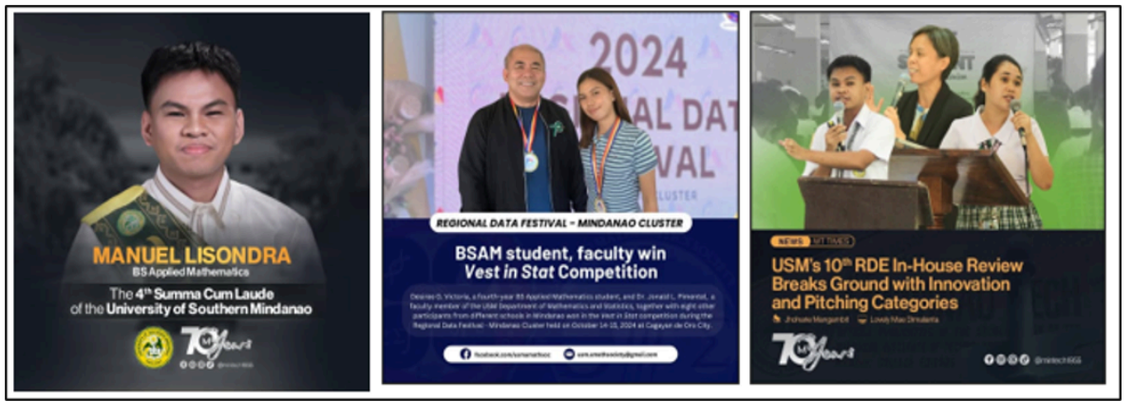
There were a number academic scholars from the BS Applied Mathematics program proving the effectiveness of teaching and learning activities resulting from administrative support.



- Present evidence that graduates of the program are employable.

  Based on the BS Applied Math Employment Feedback Report, as the employment pattern of BSAM graduates is increasing, highly favorable and exceeding institutional accreditation benchmarks across official tracer studies and employer evaluation reports; this report, together with the previous conducted Tracer Study, where graduates are employed in Government / Public Sector, Private Sector, Education & Academe, and are self-employed, proves that graduates of the program are employable.

  Also, the commendable academic and leadership performances of these graduates are solid evidence that they were highly competitive in the job market with very high probability of employment.



4. BEST PRACTICES

- Cite as many best practices as you can on Parameter F (Administrative Support for Effective Instruction)

  The Bachelor of Science Applied Mathematics (BSAM) program of the University of Southern Mindanao (USM), manifests institutional best practices that demonstrate strong Administrative Support for Effective Instruction (Parameter F), provided in the USM Code (2024 Edition), the USM Revised Faculty Manual (2024 Edition), and ISO Quality Management System (QMS) procedures such as:

  1. ISO-Certified Classroom Observation & Supervisory System

  • Structured Observation Protocols (USM-EDU-002 & USM-EDU-016)

Teaching delivery is directly monitored through scheduled classroom visits conducted once per semester for regular/permanent faculty and twice per semester for Contract of Service (COS) / temporary faculty.

• Immediate Post-Observation Feedback

Every observation is followed by a post-observation conference between the academic supervisor and the faculty member to review teaching effectiveness and recommend specific instructional enhancements.

2. Multi-Perspective Performance & Talent Advancement Frameworks

• Multi-Point Evaluation System Faculty teaching competence is systematically evaluated every semester across multiple evaluative perspectives, including Supervisory Evaluation of Faculty (SEF), Student Evaluation of Teaching (SET), self/peer assessments.

• DYCAS & PROFESS Merit Matrix: Evaluation ratings, Individual Performance Commitment and Review (IPCR) scores, and L&D entries feed into the Dynamic Candidates Assessment System (DYCAS) 9-box potential-performance matrix and the PROFESS System to drive merit promotion, rank reclassification, and talent placement.

3. Institutionalized Faculty Capability Building (Linang Tao LDMS)

• Guaranteed Annual Development Interventions Operating under the Linang Tao Learning and Development Management System (LDMS), university policy guarantees that every faculty member receives at least one L&D intervention per year.

4. Intellectual Property & Mass Production Support for Faculty IMs

• Systematic Development Workflow (USM-EDU-006) Faculty are guided by a standardized 6-step process to author, review, refine, approve, and archive custom instructional materials (modules, manuals, workbooks, and software simulations).

• IPTTBDO & UMPC Infrastructure The Intellectual Property, Technology Transfer and Business Development Office (IPTTBDO) directly assists faculty in copyrighting custom instructional modules, while the USM Multimedia Production Center (UMPC) handles mass printing and distribution [127–128, 133].

5. CSC-Approved Rewards and Recognition (GAWAD USM / PRAISE)

• Performance-Based Merit Awards Operating under Civil Service Commission (CSC) PRAISE guidelines, the Gawad Uliran sa Serbisyong Mahusay (GAWAD USM) program allocates at least 5% of the HRD Fund to confer monetary incentives, step increments, plaques, and awards (e.g., Ulirang Mapaglikha, Outstanding Instructor/Professor) for outstanding teaching ratings, research publications, and copyrighted instructional materials.

5. EXTENT of COMPLIANCE with the Team Recommendations for Area III – Curriculum and Instruction in the last Survey Visit.

- Present the status of Compliance Matrix of Area III focusing on interventions done on the recommendations

Duly Accomplished Self-Survey Instrument

- Present the Summary of Findings and Recommendations for Area III (Curriculum and Instruction) during the _____ (**Preliminary**, 1st Survey, 2nd Survey, 3rd Survey, or 4th Survey) in terms of;
  1. Strengths
  2. Areas Needing Improvement
  3. Present the Summary of Ratings on the quantitative assessment on Area III

Applied Math Candidate Status (July 15, 2025).pdf