

## CMI COURSE CURRICULUM COURSE ACTION

**Course Title:** Survey of Mathematics      **Alpha Number:** Math 102      **CIP No.** 27.0101

**Type of Action:**

- New Course (attach narrative justification for course creation)
- Substantive Revision (attach narrative justification for changes, including assessment and/or achievement data and feedback from the advisory committee if relevant)

Select all that apply:

- Change in number of credit hours
- Change in prerequisite
- Substantive change in course content
- Change to SLOs       Other:

Non-substantive Revision

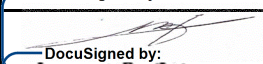

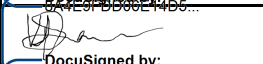

Select all that apply:

- Change in Alpha Number or Title (unless letter abbreviation has not previously been used)
- Edit to course description that does not alter the substance of the course
- Change to recommended texts
- Other: Change in number of contact hours from 48 to 45

Reinstitution of Archived Course (attach narrative justification for reinstitution, including evidence of demand, evidence of capacity, feedback from the advisory committee if relevant, and commentary that speaks directly to the reasons the course was initially archived)

Reaffirmation of Course (only allowable if course completion rate exceeds ISS, the benchmark has been met for the majority of SLO assessments, and there is no evidence of inequitable levels of achievement across subpopulations; attach evidence)

**Approvals:**

	Name	Signature	Date
Department Chair	Edward Alfonso		6/6/2024
Curriculum Committee Chair	Desmond Doulatram		6/5/2024
Dean	Vasemaca Savu		6/5/2024
VPASA	Dr. Elizabeth Switaj		6/10/2024

**CMI COURSE OUTLINE**

**CIP No.** 27.0101

**Version No.** 005

Math 102

Survey of Mathematics

**Alpha Number**

**Course Title**

**Previous Alpha Number:**

**Course Description:** Introduces students to a broad variety of mathematical applications. Emphasizes topics that are applicable to students' lives. Develops students' understanding of topics such as problem solving, sets, logic, geometry and measurements, personal finance, counting techniques, probability and statistics.

**Course originally prepared by:** Mathematics Department STEM February/2003

**Most recent revision by:** Edward Alfonso/Adedayo Ogunmokun STEM June/2024

**Course mode(s):**  Face to Face (including Zoom)  Hybrid  Distance Education

**Credits calculated by:**  Credit Hour  Clock Hour

**Contact Hours:** 45

Type	No. of Hours	No. of Credits	Maximum No. of Hours Online
Lecture/Seminar/Workshop	45	3	
Clinical			
Practicum			
Lab			
Fieldwork			
Studio Time			
<b>Total</b>	45	3	

**Purpose(s) of Course:** Degree Requirement \_\_\_\_\_  
 Degree Elective LA, Business  
 General Education LA, Business  
 Credit Certification \_\_\_\_\_  
 Developmental \_\_\_\_\_  
 CTE/TVET \_\_\_\_\_  
 ABE/Adult HS \_\_\_\_\_

**Distribution Area:** Humanities \_\_\_\_\_  
 Social Sciences \_\_\_\_\_  
 Mathematics (Credit) x  
 Science \_\_\_\_\_

**Prerequisite:** Math 90's or Placement

**Student Learning Outcomes:** Upon completion of this course, students will be able to:

1. Solve problems utilizing set operations and Venn diagrams.
2. Solve problems involving number sequences
3. Calculate simple and compound interest, annuities, and loans, and utilize financial mathematics in personal financial decisions.
4. Solve measurements and geometry problems.
5. Compute and interpret probability of events utilizing the fundamental counting principles
6. Summarize statistical data using descriptive statistics.

**SLO Mapping:**

Prerequisite Course SLO	Linked SLO from this Course	Explanation
MATH 099 SLO 1 Solve word problems using real numbers	SLO 1 and 2.	Students will apply prior knowledge on solving problems to use Venn diagrams to find the number of elements in a set and to solve applications involving surveys.
MATH 099 SLO 2 Perform problems involving U.S. and Metric Systems of measurements. SLO 3 Compute the perimeter, area, and volume of basic geometric figures.	SLO 4	Extend the discussion beyond perimeter and area to include volume of geometric figures; and beyond computation to solving real world problems.
MATH 099 SLO 5. Solve word problems involving counting principles and probability of an event SLO 6 Calculate the mean, median, mode and range of ungrouped data.	SLO 5 and 6	Extend the knowledge of statistics and probability to real world problems.

**Links to Program Learning Outcomes:**

SLO	Linked PLO	I/P/M	Explanation of Link
1	LA Critical Thinking LA Quantitative/Scientific Literacy GE Quantitative Literacy	P	Venn diagrams are often used in mathematical contexts to solve quantitative and word problems by visualizing how multiple sets, concepts or objects relate to one another.
2	LA Quantitative/Scientific Literacy GE Quantitative Literacy	P	Use arithmetic and geometric sequences and series that arise out of various formulas to determine various possibilities of a certain situation to predict something.
3	LA Critical Thinking LA Quantitative/Scientific Literacy GE Quantitative Literacy	P	Fundamentals of personal financial skills such as savings, investments, loans, and debts are essential tools for consumers and managers to make responsible decisions.

4	LA Critical Thinking; LA Quantitative/Scientific Literacy GE Problem Solving GE Quantitative Literacy	P	The concept of chance and variation in life forms the fundamental basis of modern optimization methods, statistics, and risk modeling which can directly impact our lives.
5	LA Quantitative/Scientific Literacy GE Quantitative Literacy	M	Geometry and measurement develop an understanding of the connection between form and function of common shapes.
6	LA Quantitative/Scientific Literacy GE Quantitative Literacy	M	Understanding the complex world by collecting, organizing, analyzing, and interpreting data or making sense of observation and how to draw valid decisions.

**Course Content:** Students in this course will be able to understand:

1. Problem solving and sets
2. Number Sequences
3. Personal finance
4. Geometry and measurements
5. Counting principle and probability
6. Statistics

**Higher Order Thinking Skills: Students in this course will experience:**

- Analyzing the basic elements of an idea, experience, or theory
- Making judgments about the value or soundness of information, arguments, or methods
- Applying theories or concepts to practical problems or in new situations

**Recommended Methods of Instruction**

- Demonstration
- Lecture
- Small group discussion
- Class discussion
- Audio-Visual Aids
- Laboratory
- Supervised Practice
- Field Trips
- Other: Online learning support system, Rich Tasks, Projects

**Recommended Assessment Tool Type(s):**

- Case Study
- Critique of Performance
- Exam/Quiz In-Course
- Exam/Quiz Standardized (attach narrative describing development and validation process) \_\_\_\_\_
- Focus Group
- Group Project
- Individual Project
- Observation
- Portfolio Review
- Presentation
- Simulation
- Skill Performance

- Supervisor Evaluation
- Survey
- Written Assignment

**Required Forms of Regular and Substantive Interaction for Hybrid or Distance Education Courses (Selected at Least Two):**

- Direct instruction through:
  - Live video lectures
  - Live audio-only lectures
  - Live text chats
- Assessing or providing feedback on a student's coursework
- Providing information or responding to questions about the content of a course or competency through:
  - Live video discussions
  - Live audio-only discussions
  - Live text chats
  - Asynchronous message boards or text chats
- Facilitating a group discussion regarding the content of a course or competency through:
  - Live video discussions
  - Live audio-only discussions
  - Live text chats
  - Asynchronous message boards or text chats
- Other, specify:

Note: for distance education courses, if only two are selected, both must occur within the course on a weekly basis. If more than two are selected, the instructor may choose which two are used during each week.

**Equipment and Materials:**

1. Recommended texts: Bello Ignacio, Kaul Anton, Britton R. Jack, Topics in Contemporary Mathematics, 10<sup>th</sup> Edition, Cengage Learning, 2013. ISBN-13: 978-1133107422
2. Equipment/Facilities: Calculators (scientific & graphing), computer lab.
3. Materials and Supplies: Whiteboard rulers, Geometry manipulatives, Statistical data from EPPSO, Public Information from Banks, and Receipts from Stores.

**Connection to College Mission:**

The College of the Marshall Islands will provide our community with access to quality, higher and further educational services, prioritize student success through engagement in relevant Academic, Career and Technical Education, and be a center for the study of Marshallese Culture. It will also provide intellectual resources and facilitate research specific to the needs of the nation. *EC approved 4th Nov, 2020. BOR approved 1st December, 2020*

In this course, non-STEM students are taught the meaning and usage of math concepts and how to use basic math skills in context, by applying what they have learnt to the modern social situations and how it affects them. In this way, students' educational learning experiences are enriched with the quality, higher level of math that is contextual and applicable to them as Marshallese. Topics such as probability will help in facilitating community research among the students.

**Connection to Department Mission:**

The mission of the Science, Technology, and Mathematics (STEM) Department is to provide science, technology and mathematics courses to support academic programs and prepare students seeking careers in marine science or an advanced education in a STEM discipline. *Approved by CC on March 5, 2018. Approved by IEC on March 14, 2018.*

MATH 102 supports the Department's mission by providing non-STEM students with credit level Math that complements their academic program and their preparedness for future careers and advanced education.

**Recommended Assessment Tool Type(s):**

- Case Study  
 Critique of Performance  
 Exam/Quiz In-Course  
 Exam/Quiz Standardized (attach narrative describing development and validation process)  
 Focus Group  
 Group Project  
 Individual Project  
 Observation  
 Portfolio Review  
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**Equipment and Materials:**

1. Recommended texts: Allan G. Bluman, Elementary Statistics: A Step by Step Approach, 10<sup>th</sup> Edition, McGraw-Hill, 2017. ISBN-13: 9781259755330
2. Equipment/Facilities: Calculators (scientific & graphing), computer lab.
3. Materials and Supplies: Whiteboard rulers, Statistical data from EPPSO, Public Information from Banks.