INTERAMERICAN UNIVERSITY OF PUERTO RICO
METROPOLITAN CAMPUS
COMPUTER SCIENCES AND MATHEMATICS DEPARTMENT
MATHEMATICS PROGRAM
Syllabus

I. GENERAL INFORMATION

COURSE TITLE:	PRECALCULUS 1
CODE AND NUMBER:	MATH 1511
CREDITS:	3 credits
ACADEMIC TERM	
PROFESSOR:	
OFFICE HOURS:	
PHONE:	
EMAIL:	

All students will take 3 credits in mathematics. The students with a Bachelor's degree in Arts in Secondary Education, Biology, Sciences, Mathematics or Chemistry, Bachelor's in Science or Business Administration and Associate degrees requiring MATH 1500 or MAEG 2140 will have to take **GEMA 1200.**

II. COURSE DESCRIPTION

Study of the functions, their algebra and the inverse function with an emphasis on linear, polynomial, rational, exponential and logarithmic functions.

III. GENERAL OBJECTIVES

At the end of the course, the student will be able to:

1. Adequately use the concept of function and its properties to model real life situations and to solve problems.
2. Familiarize themselves with graphing elemental functions using displacement and translation techniques.
3. Apply the properties of polynomial and rational functions to solve problems using maximums and minimums.
4. Apply the properties of polynomial and rational functions to solve problems using growth.
5. Know the set of complex numbers and its properties and apply when ever necessary.
6. Integrate the use of technology in a pertinent manner.
7. Understand the use of math in their professional and daily lives.

This course responds to Student Learning Outcomes for the BA in MATH numbers 1,3 and 4.

IV. COURSE CONTENT

A. Functions and their graphs

1. Function
   - definition
   - evaluation
   - domain and range
2. Graph of functions
   - even and odd functions
   - increasing and decreasing functions
3. Graphs of special functions
4. Graphing techniques
5. Operations with functions

B. Polynomial and rational functions

1. The quadratic functions
   - Vertex
   - Intersection with the axis
   - Graph
   - Applications
2. Polynomial functions
3. Rational Functions
4. Real zeros
   - Synthetic division
   - Remainder and factor theorems
   - Rational zeros
5. Complex numbers

C. Exponential and logarithmic functions

1. Inverse functions
2. Exponential functions
   - Evaluation
   - Asymptotes and graphs
   - Applications
   - Base e
3. Logarithmic functions
   - Change to exponential form
   - Domain and asymptotes
   - Graphs
4. Properties of logarithms
   Base e

- Change of base

5. Exponential and logarithmic equations

V. ACTIVITIES

A. In class lectures
B. Online quizzes
C. Special assessment activities
D. Group work activities
E. The use of a calculator is required
F. Communication activities
G. Word problem applications

VI. EVALUATION CRITERIA

3 Partial Exams	54%
Cumulative Departmental Final Exam	20%
Assignments	13%
Quizzes	13%
Total:	100%

All of the above criteria will be counted towards your final grade.

Grade Scale:

90-100	A
80-89	B
65-79	C
60-69	D
0-59	F

VII. SPECIAL NOTES

1. **Rights of disabled students:**

   All students who require auxiliary services or special assistance must request them at the beginning of the course or as soon as they become aware of what they need, through the corresponding register in the Office of the Professional Counselor, Dr. María de los Ángeles Cabello, located in the University Orientation Program, Ext. 2306. Email mcabello@metro.inter.edu.

2. **Warning about honesty, fraud and plagiarism:**

Lack of honesty, fraud, plagiarism and any other inadequate behavior related to the academic endeavor constitute major infringements sanctioned by the General Student 0suspension for more than a year or the permanent expulsion from the university, among other sanctions.

3. Use of electronic devices:

All cellular phones and electronic devices must be deactivated because of possible interruptions with the teaching learning process to dissuade the disruption of the academic excellence environment. All emergencies will be managed accordingly. It is prohibited the use of electronic devices that could access, store or send/receive data during evaluations and exams.

4 . **Compliance with the provisions of Title IX**

The Federal Higher Education Act, as amended, prohibits sex discrimination in any academic, educational, extracurricular, athletic, or any other program or employment, sponsored or controlled by an institution of higher education regardless of whether it is conducted inside or outside the institution's premises, if the institution receives federal funds.

As provided by current federal regulations, a Title IX Assistant Coordinator has been designated in our academic unit to provide assistance and guidance in relation to any alleged incident of discrimination based on sex or gender, sexual harassment or sexual assault .

You can contact the Assistant Coordinator

The Normative Document entitled *Standards and Procedures for Responding to Alleged Violations of Title IX Provisions* contains the institutional rules for channeling any complaint that is based on this type of allegation. This document is available on the website of the of the Inter-American University of Puerto Rico (www.inter.edu).

VIII. Educational Resources

1. Text: Precalculus, 5thed, Educo International 2012
2. Scientific calculador

IX. BIBLIOGRAPHY

* Stewart J. (2012). Precálculo – Matemáticas para el Cálculo. Sexta Edición. Thomson Editores. México.

* Blitzer. R. (2014). Precalculus. 5ta Edición. Pearson. Prentice Hall. New Jersey.

* Dugopolski M. (2012). Precalculus: Functions and Graphs. Fourth Edtion Addison- Wesley. New York.

* Larson, R (2014). Precalculus. Ninth Edition. Brooks/Cole. Cengage Learning.

* Stewart J. (2012). Precalculus: Mathematics for Calculus. Fourth Edition. Brooks/Cole. California.

* Sullivan (2016). Precalculus Plus My MathLab. Tenth Editio. Pearson. Addison- Wesley. New Cork.

* Schultz E, Briggs, W; Cochran L. (2014). Precalculus eText. Pearson. Addison- Wesley. New York.

B. REFERENCIAS ELECTRÓNICAS * Khan Academy – Álgebra I: http://es.khanacademy.org/math/algebra * Khan Academy – Álgebra II: http://es.khanacademy.org/math/algebra2 * Graphing Functions: http://www.analyzemath.com/Graphing.html * Graphing tool: Padowan Grapher for Windows: http://www.padowan.dk/download/ * Math problems solution tool: Mathway: https://www.mathway.com/

Reviewed: October/2022