

University of Guam
UOG Station
Mangilao, Guam 96923
Tel. (671) 735-2780
Fax. (671) 734-1299

College of Natural and Applied Sciences

Course: Finite Mathematics – MA110 -01/06(3 credits)

Meeting: MA 110-01 MW 9:30am – 10:50am WB3

MA 110-06 MW 8:00am – 9:20am WB3

Semester: Spring 2016

Instructor: Earvin Santa Maria

Office Hours: By appointment

Telephone: 787-2450 (cellphone)

E-mail: epsm79@gmail.com

Catalog Description:

This course covers linear, exponential and logarithmic functions and their applications to finance and economics. The course also provides an introduction to solving system of linear equations, matrix operations, and a treatment of linear programming which includes simplex method. The course satisfies the GE requirement, but does not satisfy any prerequisite for higher level mathematical courses. It is intended for those students who do not need to go further in mathematics.

Text: Finite Mathematics: For Business, Economics, Life Sciences, and Social Sciences.
12th Edition
Barnet, Ziegler and Byleen
Prentice Hall

Rationale for Course: Satisfies General Education Core requirements.

Prerequisites: MA085 Level II, completed within the previous 3 semesters, or placement.

Goals and Objectives:

Upon successful completion of the course, the student should have an understanding and competency in:

- I. Linear Equations and Graphs and be able to
 - 1-1 Solve linear equations, and linear inequalities
Solve applications requiring the use of linear equations and linear inequalities.
 - 1-2 Find x and y intercepts for linear equations, graph linear equations, find slopes and equations of lines.
 - 1-3 Interpret the slope as a rate of change

Use linear regression models to solve applications.

- II. Functions and Graphs
 - 2-1 Identify functions from graphs
Find domain of functions
Identify functions from equations
Use function notation
 - 2-2 Review graphs of elementary functions
Graph transformations of elementary functions
Graph piecewise functions
 - 2-5 Graph basic exponential functions
Solve exponential equations with same base
Solve applications involving compound interest
 - 2-6 Graph basic logarithmic functions
Use log properties to write equivalent logarithmic expressions
Solve logarithmic and exponential equations
- III. Mathematics of Finance
 - 3-1 Determine when to use simple interest formula
Solve algebraically for any variable in simple interest formula
 - 3-2 Determine when to use compound interest formula
Solve (algebraically) for A, P, r, I, n or t in compound interest formula
Solve (algebraically) for A, P, r, I, n or t in continuous compound interest formula
 - 3-3 Determine when to use future value formula
Solve (algebraically) for FV or PMT in a future value formula
 - 3-4 Determine when to use present value formula
Solve (algebraically) for PV or PMT in a present value formula
Complete an amortization table
Determine equity in a home
- IV. Systems of Linear Equations in Two Variables
 - 4-1 Solve systems of linear equations by graphing, substitution or elimination by addition methods
Solve applications involving systems of linear equations
 - 4-2 Understand the basic concepts of matrices.
Solve linear systems using augmented matrices
 - 4-3 Determine if matrices are reduced
Solve systems of linear equations by Gauss-Jordan elimination method
- V. Inequalities in Two Variables
 - 5-1 Graph linear inequalities in two variables
 - 5-2 Solve systems of linear inequalities by graphing
Solve application problems by graphing

Class Format:

This class will be conducted using a dialogue method of teaching. Questions are highly encouraged and worthwhile discussions may develop. Homework will be assigned and selected from the textbook. Homework is a form of practice and is strongly encouraged to complete as quizzes and test materials will be inspired by homework problems.

Calculator:

A dedicated scientific calculator (non-smartphone) is recommended for this course during quizzes, tests and exams.

Syllabus:

Material to be covered in this course is included in chapters 1 through 5 of the textbook.

Attendance:

Your attendance in class is highly encouraged and may relate to your grade. Please inform the instructor if you will be absent.

Evaluation:

- Homework: Homework is graded only by completed or not completed and becomes a part of your section grade (percentage averaged with quiz)
- Quizzes: Every section will be quizzed and graded. Quizzes may be retaken up to 3 times (percentage averaged with homework)
- Tests: At the end of every chapter is a Chapter Test (percentage)
- Exams: There will be two exams throughout the semester. A mid-semester exam and a final (percentage)
- Attendance: Not mandatory but highly encouraged (extra credit)
- Make-ups: Contact instructor before or immediately after any quiz, test or exam to make-up. You must have a proper excuse to be allowed a make-up.

- Grading:** A \geq 90%
- 80% \leq B \leq 89%
- 70% \leq C \leq 79%
- 60% \leq D \leq 69%
- F \leq 59%

Special Accommodations:

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from EEO/ADA Office. If you have not registered with the EEO/ADA Office, you should do so immediately at 735-2244/2971/2243 to coordinate your accommodation request.

Note 1:

Get to know your classmates. It is important to enter into discussions to clarify ideas and concepts presented in the class. You can always email/contact the instructor to seek assistance on material for this course. Attendance is very important. Never leave the class before understanding the material that is presented.

Note 2:

Update yourself about steps/precautions to take to help prevent the spread of H1N1 virus among the fellow students and the Guam community as a whole. Seek the advice of your physician or follow public health advisories on this issue.

LEARNING OBJECTIVES FOR STUDENTS:**(Intended Student Learning Outcomes- SLOs):**

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

- (1) Demonstrate familiarity with linear, quadratic, exponential and logarithmic functions.
- (2) Apply the concept of function in making models for problem solving.
- (3) Solve systems of equations and perform operations on matrices.

- (4) Construct mathematical models and solutions for optimization problems graphically.

(QR GE Learning Outcomes):

UOG students will be able to apply analytical and QR reasoning to address complex challenges and everyday problems by:

- (1) Interpreting information presented in a mathematical and graphical form;
- (2) Representing information in a mathematical and graphical form;
- (3) Effectively calculating using quantitative data;
- (4) Analyzing quantitative information in order to scrutinize it and draw appropriate conclusions;
- (5) Evaluating the assumptions used in analyzing quantitative data
- (6) Communicating quantitative information in support or refutation of an argument.

(UOG Expected Student Learning Outcomes) December 2008- Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

ILO-1: Mastery of critical thinking & problem solving

ILO-2: Mastery of quantitative analysis

ILO-3: Effective oral and written communication

ILO-4: Understanding & appreciation of culturally diverse people, ideas & values in a

democratic context

ILO-5: Responsible use of knowledge, natural resources, and technology

ILO-6: An appreciation of the arts & sciences

ILO-7: An interest in personal development & lifelong learning

| Course Student Learning Outcomes (SLOs) | University Learning Outcomes (ILOs) | QR GE Learning Outcomes | Method of Assessment |
|--|---|------------------------------|--|
| (1) Demonstrate familiarity with linear, quadratic, exponential and logarithmic functions. | ILO-1 ILO-2 | QR-3 QR-5 QR-6 | Questions on homework, assignments, quizzes, and tests |
| (2) Apply the concept of function in making models for problem solving. | ILO-1 ILO-2 ILO-3 ILO-5 | QR-3 QR-4 QR-5 | Questions on homework, assignments, quizzes, and tests |
| (3) Solve systems of equations and perform operations on matrices. | ILO-1 ILO-2 | QR-1 QR-2 QR-4 QR-5 | Questions on homework, assignments, quizzes, and tests |
| (4) Construct mathematical models and solutions for optimization problems graphically. | ILO-1 ILO-2 ILO-3 ILO-5 ILO-6 | QR-1 QR-2 QR-3 QR-4 | Questions on homework, assignments, quizzes, and tests |

Disclaimer: This syllabus is subject to change.



UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

BASIC INFORMATION (SEE INSTRUCTOR):

- (1) Semester/year: Spring 2016
- (2) Course: MA110-07/08 Finite Mathematics
- (3) Class Meeting: (07) MW 4:00pm - 5:20pm HSB 229
(08) MW 5:30pm - 6:50pm WB1
- (4) Instructor: Ryan Flores
- (5) Office: 206 CNAS Dean's Office, ALS Bldg.
- (6) Phone: 735-2000 (leave a message)
- (7) Email: ryandflores@gmail.com
- (8) Office Hours: By Appointment

CATALOG COURSE DESCRIPTION:

This covers linear, quadratic, polynomial, exponential and logarithmic functions, and their applications to finance and economics. The course also provides an introduction to solving systems of linear equations, matrix operations, and a treatment of linear programming which includes the simplex method. Prerequisite: MA*084b, MA*085 Level II or placement.

COURSE CONTENT:

Basic algebraic operations; equations, graphs, and functions; exponential and logarithmic functions; mathematics of finance; systems of linear equations; Gauss-Jordan elimination; matrix operations; linear inequalities; and introduction to linear programming.

RATIONALE FOR OFFERING COURSE:

Finite Mathematics satisfies general education requirement. It introduces the finite, discrete side of mathematics.

SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Students should be able to handle detailed arithmetic calculations and elementary algebra as evidenced by completion of MA*085 or an adequate score on the Mathematics Placement Test.

LEARNING OBJECTIVES FOR STUDENTS:

(Intended Student Learning Outcomes- SLOs):

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

- (1) Demonstrate familiarity with linear, quadratic, exponential and logarithmic functions.
- (2) Apply the concept of function in making models for problem solving.
- (3) Solve systems of equations and perform operations on matrices.
- (4) Construct mathematical models and solutions for optimization problems graphically.

(QR GE Learning Outcomes):

UOG students will be able to apply analytical and QR reasoning to address complex challenges and everyday problems by:

- (1) Interpreting information presented in a mathematical and graphical form;
- (2) Representing information in a mathematical and graphical form;
- (3) Effectively calculating using quantitative data;
- (4) Analyzing quantitative information in order to scrutinize it and draw appropriate conclusions;
- (5) Evaluating the assumptions used in analyzing quantitative data

(6) Communicating quantitative information in support or refutation of an argument.
(UOG Expected Student Learning Outcomes) December 2008- Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

- ILO-1: Mastery of critical thinking & problem solving
- ILO-2: Mastery of quantitative analysis
- ILO-3: Effective oral and written communication
- ILO-4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context
- ILO-5: Responsible use of knowledge, natural resources, and technology
- ILO-6: An appreciation of the arts & sciences
- ILO-7: An interest in personal development & lifelong learning

| Course Student Learning Outcomes (SLOs) | University Learning Outcomes (ILOs) | QR GE Learning Outcomes | Method of Assessment |
|--|---|------------------------------|--|
| (1) Demonstrate familiarity with linear, quadratic, exponential and logarithmic functions. | ILO-1 ILO-2 | QR-3 QR-5 QR-6 | Questions on homework, assignments, quizzes, and tests |
| (2) Apply the concept of function in making models for problem solving. | ILO-1 ILO-2 ILO-3 ILO-5 | QR-3 QR-4 QR-5 | Questions on homework, assignments, quizzes, and tests |
| (3) Solve systems of equations and perform operations on matrices. | ILO-1 ILO-2 | QR-1 QR-2 QR-4 QR-5 | Questions on homework, assignments, quizzes, and tests |
| (4) Construct mathematical models and solutions for optimization problems graphically. | ILO-1 ILO-2 ILO-3 ILO-5 ILO-6 | QR-1 QR-2 QR-3 QR-4 | Questions on homework, assignments, quizzes, and tests |

FORMAT AND ACTIVITIES IN THE COURSE:

Students will need a great deal of feedback to learn how to reliably analyze each mathematical question and use different approaches to solve a variety of problems. Much or most of the class time will be devoted to lectures and discussions of board problems. Questions are highly encouraged. Work involves reading, discovering, and practicing problems.

Class meetings will be conducted as follows:

Lecture Sessions - Instructor will:

- Present concepts in the sections of each chapter being covered;
- Present examples that students will encounter in these sections/concepts and show how to solve problems via examples;
- Provide students the opportunity to ask questions for clarification(s) about the concept being covered or clarification(s) on the examples being presented at any time during the lecture session;
- Quiz may be administered in these sessions.

Workshop Sessions will be announced, where:

- Students will work problems being covered in these sessions (Instructor will be present to assist students with the assigned problems);
- Review materials covered in lecture sessions including review on announced/scheduled exams;

Practice Problems:

- These are problems assigned as homework assignments at the end of each lesson.

TEXTBOOK AND READINGS:

Barnett, et al. "Finite Mathematics for Business, Economics, Life Sciences, and Social Sciences." 13th Edition (2015). Pearson

ADDITIONAL MATERIALS OR EQUIPMENT:

A scientific calculator is required for this course; graphing calculators are strongly recommended if you are able to get a hold of one. Laptop and cellphones are not allowed to use during quizzes and exams/tests.

ASSIGNMENTS, TERM PAPERS AND EXAMS:

Students will normally be given assignments after each lesson. The problems assigned will be discussed only if you request it. Although assigned homework is not collected, students are advised to work with the problems to be ready for a pop quiz. Much or most of the pop quiz questions will be derived from the assigned homework.

EVALUATION AND GRADES:

The semester grades will be evaluated based on grades obtained from quizzes, tests, and final exam. The percentage breakdown for grade computation is given below:

| | |
|-----------------|-------|
| a. Quizzes..... | 30% |
| b. Tests..... | 65% |
| | <hr/> |
| TOTAL | 100% |

The letter grade after the final numerical grade is computed is given below:

| | |
|------------|-----|
| 90% - 100% | → A |
| 80% - 89% | → B |
| 70% - 79% | → C |
| 60% - 69% | → D |
| ≤ 59% | → F |

Your attendance in class is highly encouraged and may directly relate to your grade. There will be about 8-10 quizzes and no make-up for the quizzes. Lowest two will be dropped.

COURSE POLICIES:

Attendance

YOU ARE EXPECTED TO ATTEND CLASSES AND ON TIME, EVERY LECTURE. Missing class will put you behind in the material and cause for you a break in the flow of the course.

Make-up policy

There will be **NO MAKE-UP** quizzes, **NO MAKE-UP** in-class exams.

Students' responsibility

You are expected to be on time for each class (barring unforeseen circumstances). Please keep tardiness and absences to a minimum. If you are absent, it is your responsibility to pick up anything handed out or passed back during your absence, and in a timely manner. Please see me before or after class to obtain these items, though--not during the day's lesson.

It is your responsibility to keep hold of any supplemental material distributed in class. It is also your responsibility to hold on to quizzes and tests passed back to you. Do not assume I always have additional copies of previous handouts, quizzes or tests (or accompanying answer keys) available. It is your responsibility to keep an accurate record of your graded work.

SPECIAL NEEDS:

"If you are a student with a disability who will require a accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA and TITLE IX Office. If you have not registered with the

EEO/ADA and Title IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request.”

DROP DATES:

University policy sets the drop dates. You can withdraw from classes “voluntarily” until mid-semester (i.e., without notifying instructor) and as late as the end of the semester with instructor’s signature on a withdrawal form. See the semester schedule of courses.

CALENDAR OR SCHEDULE:

| | |
|------------|--|
| Week 0-2 | A.1 Real Numbers A.2 Operations on Polynomials A.3 Factoring Polynomials A.4 Operations on Rational Expressions A.5 Integer Exponents and Scientific Notations A.6 Rational Exponents and Radicals A.7 Quadratic Equations |
| Week 3-4 | 1.1 Linear Equations and Inequalities 1.2 Graphs and Lines 1.3 Linear Regression Review Test 1 |
| Week 5-6 | 2.1 Functions 2.2 Elementary Functions: Graphs and Transformations 2.3 Quadratic Functions 2.4 Polynomial and Rational Functions |
| Week 7-9 | 2.5 Exponential Functions 2.6 Logarithmic Functions 3.1 Simple Interest 3.2 Compound and Continuous Interest Review Test 2 |
| Week 10-12 | 4.1 Systems of Linear Equations in Two Variables 4.2 Systems of Linear Equations and Augmented Matrices 4.3 Gauss-Jordan Elimination 4.4 Matrices: Basic Operations 4.5 Inverse of a Square Matrix 4.6 Matrix Equations and Systems of Linear Equations |
| Week 13-15 | 5.1 Linear Inequalities in Two Variables 5.2 Systems of Linear Inequalities in Two Variables 5.3 Linear Programming in Two Dimensions: Geometric Approach Review Test 3 |
| Final | (07) Tuesday, May 17, 2016, 16:00PM – 17:50PM (08) Tuesday, May 17, 2016, 18:00PM – 19:50PM |

Please note that calendar above is tentative. You are **expected** to come every class meeting.

CONTACT INFORMATION FOR CLASSMATES:

Exchange contact info with at least one classmate. Contact your classmate(s) if you miss class or if you want to form a study group.

*****This syllabus is subject to change at the instructor’s discretion.*****

University of Guam
UOG Station
Mangilao, Guam 96923
Tel. (671) 735-2780
Fax. (671) 734-1299

College of Natural and Applied Sciences

Course: Introductory College Algebra – MA115 -03(3 credits)

Meeting: T Th 9:30am – 10:50am WB3

Semester: Spring 2016

Instructor: Earvin Santa Maria

Office Hours: By appointment

Telephone: 787-2450 (cellphone)

E-mail: epsm79@gmail.com

Catalog Description:

This course prepares students for MA161a-b or MA165. Topics include polynomial equations; radical expressions; systems of equations and inequalities; functions; inverse functions; graphing; rational, exponential, and logarithmic functions; and application problems. This course satisfies the GE requirement. It is intended for those students who continue their studies in mathematics after completing this course.

Text: "ALGEBRA, FORM & FUNCTION", 2nd Edition
Eric Connally/Deborah Hughes - Hallett et.al,
published by Wiley and Sons.

Rationale for Course:

The purpose of an Intermediate Algebra course is to prepare students for success in MA161a, and MA165. The student is asked to solve problems similar to those encountered in Elementary Algebra, but at a more sophisticated, more difficult level. This helps the student to absorb and understand the underlying concepts better and to feel more comfortable with the material. It also improves retention of basic algebraic techniques and ideas. Intermediate Algebra is the course in which students are introduced to inverse functions, exponential functions, and logarithmic functions. A basic understanding of these concepts is critical for success in any college level mathematics course, as well as in physics, chemistry, economics, biology, and many other subjects.

Prerequisites: MA085 Level II, completed within the previous 3 semesters, or placement.

Class Format:

This class will be conducted using a dialogue method of teaching. Questions are highly encouraged and worthwhile discussions may develop. Homework will be assigned and selected from the textbook. Homework is a form of practice and is strongly encouraged to complete as quizzes and test materials will be inspired by homework problems.

Calculator:

A dedicated scientific calculator (non-smartphone) is recommended for this course during quizzes, tests and exams. No device that can access the internet is allowed during these times.

Syllabus:

Material to be covered in this course is included in chapters 1 through 5 of the textbook.

Attendance:

Your attendance in class is highly encouraged and may relate to your grade. Please inform the instructor if you will be absent.

Evaluation:

- Homework: Homework is graded only by completed or not completed and becomes a part of your section grade (percentage averaged with quiz)
- Quizzes: Every section will be quizzed and graded. Quizzes may be retaken up to 3 times (percentage averaged with homework)
- Tests: At the end of every chapter is a Chapter Test (percentage)
- Exams: There will be two exams throughout the semester. A mid-semester exam and a final (percentage)
- Attendance: Not mandatory but highly encouraged (extra credit)
- Make-ups: Contact instructor before or immediately after any quiz, test or exam to make-up. You must have a proper excuse to be allowed a make-up.

Grading: A \geq 90%

80% \leq B \leq 89%

70% \leq C \leq 79%

60% \leq D \leq 69%

F \leq 59%

Special Accommodations:

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from EEO/ADA Office. If you have not registered with the EEO/ADA Office, you should do so immediately at 735-2244/2971/2243 to coordinate your accommodation request.

Note 1:

Get to know your classmates. It is important to enter into discussions to clarify ideas and concepts presented in the class. You can always email/contact the instructor to seek assistance on material for this course. Attendance is very important. Never leave the class before understanding the material that is presented.

Note 2:

Update yourself about steps/precautions to take to help prevent the spread of H1N1 virus among the fellow students and the Guam community as a whole. Seek the advice of your physician or follow public health advisories on this issue.

LEARNING OBJECTIVES FOR STUDENTS:**(Intended Student Learning Outcomes- SLOs):**

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

- (1) Demonstrate familiarity with linear, quadratic, exponential and logarithmic functions.
- (2) Apply the concept of function in making models for problem solving.
- (3) Solve systems of equations and perform operations on matrices.

- (4) Construct mathematical models and solutions for optimization problems graphically.

(QR GE Learning Outcomes):

UOG students will be able to apply analytical and QR reasoning to address complex challenges and everyday problems by:

- (1) Interpreting information presented in a mathematical and graphical form;
- (2) Representing information in a mathematical and graphical form;
- (3) Effectively calculating using quantitative data;
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(UOG Expected Student Learning Outcomes) December 2008- Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

ILO-1: Mastery of critical thinking & problem solving

ILO-2: Mastery of quantitative analysis

ILO-3: Effective oral and written communication

ILO-4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context

ILO-5: Responsible use of knowledge, natural resources, and technology

ILO-6: An appreciation of the arts & sciences

ILO-7: An interest in personal development & lifelong learning

| Course Student Learning Outcomes (SLOs) | University Learning Outcomes (ILOs) | QR GE Learning Outcomes | Method of Assessment |
|--|---|------------------------------|--|
| (1) Demonstrate familiarity with linear, quadratic, exponential and logarithmic functions. | ILO-1 ILO-2 | QR-3 QR-5 QR-6 | Questions on homework, assignments, quizzes, and tests |
| (2) Apply the concept of function in making models for problem solving. | ILO-1 ILO-2 ILO-3 ILO-5 | QR-3 QR-4 QR-5 | Questions on homework, assignments, quizzes, and tests |
| (3) Solve systems of equations and perform operations on matrices. | ILO-1 ILO-2 | QR-1 QR-2 QR-4 QR-5 | Questions on homework, assignments, quizzes, and tests |
| (4) Construct mathematical models and solutions for optimization problems graphically. | ILO-1 ILO-2 ILO-3 ILO-5 ILO-6 | QR-1 QR-2 QR-3 QR-4 | Questions on homework, assignments, quizzes, and tests |

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College of Natural and Applied Sciences

Mathematics and Computer Science

Course: MA 115-01 Introductory College Algebra
Semester: Spring 2016
Meetings: MW 09:30-10:50 SC 101
Instructor: Michael Herreros, B.S. Mathematics
Email: herreros.michael@gmail.com
Office hours: By appointment

Catalog Description:

This course prepares students for MA161a-b or MA165. Topics include polynomial equations; radical expressions; systems of equations and inequalities; functions; inverse functions; graphing; rational, exponential, and logarithmic functions; and application problems. This course satisfies the GE requirement. It is intended for those students who continue their studies in mathematics after completing this course. Prerequisite: MA085 Level II, completed within the previous 3 semesters, or placement.

Recommended Text:

"ALGEBRA, FORM & FUNCTION", Eric Connally/Deborah Hughes-Hallett [et.al](#), ISBN 978-0470-52143-4, published by Wiley and Sons.

Learning Objectives for Students:

- Demonstrate enhancement of basic fluency, in routine operations of elementary algebra.
- Graph and sketch linear, quadratic, polynomial, rational, exponential and logarithmic functions.
- Show facility with the analytic treatment of linear, quadratic, polynomial, rational, exponential and logarithmic functions.
- Exhibit evidence of a through acquaintance with exponential and logarithmic functions and with applications of these functions in such fields as the mathematics of personal finance, biology and physical science.
- Formulate equations from quantitative data, given verbally; use learned algebraic methods to solve simultaneous sets of linear equations, to include the introductory use of elementary matrix methods.

Rational for Offering Course:

The purpose of an Intermediate Algebra course is to prepare students for success in MA161a, and MA165. The student is asked to solve problems similar to those encountered in Elementary Algebra, but at a more sophisticated, more difficult level. This helps the student to absorb and understand the underlying concepts better and to feel more comfortable with the material. It also improves retention of basic algebraic techniques and ideas. Intermediate Algebra is the course in which students are introduced to inverse functions, exponential functions, and logarithmic functions. A basic understanding of these concepts is critical for success in any college level mathematics course, as well as in physics, chemistry, economics, biology, and many other subjects.

Academic Dishonesty:

Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper or project, failure in the course and/or expulsion from the University and a letter placed in your permanent file. For more information refer to the academic dishonesty policy in the University handbook. Instructor will inform you what “stuff” you are allowed to use such as calculators, textbooks, notes, etc., but most especially “WHAT YOU ARE NOT ALLOWED TO USE for each exam!” Definitely, no student is allowed to use computers, cell phones, laptops, etc. (any device that can be used to access the internet).

Quizzes and Tests:

The primary assessment tools for the evaluation of learning outcomes and for grades are assignments, quizzes, and tests. Assignments will not be collected. Quizzes will be announced a day before administered. Tests will be announced approximately a week before the test is administered. You have only one chance to take each Quiz. If you miss a Quiz, your point for that Quiz is zero. TWO lowest Quiz scores will be dropped. The main purpose of the Quiz is to let you prepare for the "bigger" Tests. Do not worry too much about your low score on a single Quiz.

Grades:

The total number of points available is 400. Grades will be no lower than those set forth in the following table. Students work is usually graded on a partial credit basis. Students written solutions must include all work needed in order to solve problems. Points will be deducted (or given none) for omitting any work even if the answer is correct.

| | |
|---------|-----------------|
| Quizzes | 25% or (100pts) |
| Test 1 | 25% or (100pts) |
| Test 2 | 25% or (100pts) |
| Test 3 | 25% or (100pts) |
| <hr/> | |
| Total | 400 points |

Each quiz is worth 10 points. I will drop the two lowest quiz scores. No make-up for tests or quizzes.

Final grade:

- A = 360 -400 points
- B = 320 – 359 points
- C = 280 – 319 points
- D = 240 – 279 points
- F = 0 – 239 points

Calculators:

A graphing calculator (e.g. TI-83) is required for this course. You are expected to have a working calculator for Quiz/Test After Test 1.

Course Policies:

- (1) Attendance ... RECOMMENDED TO ATTEND CLASSES!!!
- (2) Assignments:
The three most important ways to learn mathematics are to DO PROBLEMS, DO PROBLEMS, AND DO PROBLEMS. Reading the text and listening to lectures, even with complete understanding, cannot substitute for solving problems on your own. Work all of the assigned problems.
- (3) Make-up policy
There will be **NO MAKE-UP** quizzes, **NO MAKE-UP** in-class exams. **I DON'T BELIEVE IN MAKE-UP ANYTHING!** If you cannot be present to take a quiz or an exam, you will need to see me to **let me know the reason why you cannot.**
- (4) Students responsibility
You are expected to be on time for each class (barring unforeseen circumstances). Please keep tardiness and absences to a minimum. If you are absent, it is your responsibility to pick up anything handed out or passed back during your absence, and in a timely manner. Please see me before or after class--or during office hours--to obtain these items, though--not during the day's lesson.
- (5) It is your responsibility to keep hold of any supplemental material distributed in class. It is also your responsibility to hold on to homework, quizzes and tests passed back to you. Do not assume I always have additional copies of previous handouts, quizzes or tests (or accompanying answer keys) available.
- (6) It is your responsibility to keep an accurate record of your graded work.
- (7) Once we begin class I expect you to be present for the full class period. Leaving after the first 10 minutes or arriving right at the end of class is not only of no benefit, it's unduly disruptive. If you are ill, PLEASE stay home and take care of the more important business of getting yourself well. If you are exhausted, PLEASE go home and get in the needed rest, for sleeping in class isn't going to help you learn the day's lesson. PLEASE give me, your fellow classmates, and the learning environment itself the same consideration and respect you yourself would wish and expect.
- (8) NO LAPTOPS, NO CELL PHONES, ..., NO DEVICE THAT CAN BE USED TO ACCESS THE INTERNET!!! I want to see your work not someone else's work. This rule will be strictly enforced during quizzes and exams!!!
- (9) **All quizzes and exams are closed book, closed notes, closed neighbor, ..., CLOSED EVERYTHING UNLESS I OTHERWISE SAY SO!!!** There will be 3 announced in-class exams. Recall: NO MAKE UP QUIZ AND NO MAKE UP EXAM EVER-EVER-EVER!!!
- (10) It is your responsibility to keep, read and know the contents of this syllabus.
- (11) **Finally, it is your responsibility to email your instructor at herrerros.michael@gmail.com. You will need to do this so that instructor can forward you assignments, additional materials, etc.**

Curriculum Mapping:

| Course SLOs | Math PLOs | UOG ILOs | Method of Assessment |
|-------------|--------------------------|--------------------------|-------------------------------|
| SLO 1 | MA PR 1 (at basic level) | ILO 1,2 (at basic level) | Tests, Group work discussions |
| SLO 2 | MA PR 1 (at basic level) | ILO 1,2 (at basic level) | Tests, Group work discussions |
| SLO 3 | MA PR 1 (at basic level) | ILO 1,2 (at basic level) | Tests, Group work discussions |

Student Learning Outcomes (SLOs)

SLO 1: Perform algebraic operations on integers, fractions, decimals and expression involving variables.

SLO 2: Generate graphs of linear equations, inequalities, and systems of equations.

SLO 3: Use algebraic representations to solve real-life applications and problems.

Program Learning Outcomes (PLOs)

MA PR 1: Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.

MA PR 2: Exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).

MA PR 3: Argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools.

MA PR 4: Apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.

MA PR 5: Show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields.

MA PR 6: Demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

Institutional Learning Outcomes (ILOs)

ILO 1: Mastery of critical thinking & problem solving

ILO 2: Mastery of quantitative analysis

ILO 3: Effective oral and written communication

ILO 4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context

ILO 5: Responsible use of knowledge, natural resources, and technology

ILO 6: An appreciation of the arts & sciences

ILO 7: An interest in personal development & lifelong learning

Special Accommodations:

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA Office. If you have not registered with the EEO/ADA Office, you should do so immediately at 735-2244/2971/2243 (TTY) to coordinate your accommodation request.

Disclaimer:

This syllabus is subject to change.

UOG Station, Mangilao, Guam 96923

Telephone: (671) 735-2825 Fax: (671) 734-4582

A Land Grant Institution Accredited by the Western Association of Schools and Colleges

MATH 115-05/06 Introductory College Algebra (OLL)

Spring 2016

| |
|---|
| No meetings on campus except 3 FRIDAYS (Feb 26, Apr 8, May 13, 5-7pm) for Test |
|---|

Instructor: Hideo Nagahashi

E-mail: nagahashi_h@yahoo.com

URL: <http://campus.uogdistance.com> (UOG Moodle site)

<http://www.uog.edu/nagahashi> (Instructor's site)

<https://www.mackichan.com> (MacKichan Software, vendor of Scientific Notebook)

Text (optional): Algebra—Form and Function, *1st ed.* by MaCallum, Connally, Hughes-Hallett et al.

Software (optional): Scientific Notebook version 5.5 by McKichan Software

Catalog Course Description: This course prepares students for MA161a-b or MA165. Topics include polynomial equations; radical expressions; systems of equations and inequalities; functions; inverse functions; graphing; rational, exponential, and logarithmic functions; and application problems. This course *satisfies* the GE requirement. *It is intended for those students who continue their studies in mathematics after completing this course.* Prerequisite: MA085 Level II, completed within the previous 3 semesters, or *placement*.

Rational for Offering Course: The purpose of an Intermediate Algebra course is to prepare students for success in MA161a, and MA165. The student is asked to solve problems similar to those encountered in Elementary Algebra, but at a more sophisticated, more difficult level. This helps the student to absorb and understand the underlying concepts better and to feel more comfortable with the material. It also improves retention of basic algebraic techniques and ideas. Intermediate Algebra is the course in which students are introduced to inverse functions, exponential functions, and logarithmic functions. A basic understanding of these concepts is critical for success in any college level mathematics course, as well as in physics, chemistry, economics, biology, and many other subjects.

Learning Online:

This section of MA115 is a Full Online course. All the instructions are done through Moodle. No meetings on UOG campus **Except THREE FRIDAYS for Tests**. To fully support your success for the course, we recommend you to use an e-learning software, **Scientific Notebook 5.5 (SNB) for windows**. SNB generates and grades Pre-Quiz algorithmically and automatically. Before each Quiz, the Pre-Quiz e-file (.qiz file) is delivered via Moodle. The qiz file includes the "seed" of practice problems, and each time you open it by using SNB, you will see the **DIFFERENT** set of problems. Work on the Pre-Quiz, grade by yourself, and read the explanation as many times as you want before taking the actual Quiz. You can also easily type math symbols and equations by SNB to submit Test/Quiz.

SNB is available from the vendor at <https://www.mackichan.com> (free for the 30 days and \$119 thereafter). SNB is not available for Mackintosh. Although it is highly recommended, SNB is OPTIONAL. For those who chose not to use SNB, I will provide the pdf version of the course material. *When you submit Test/Quiz onto Moodle, however, I will accept only one file submission either tex (by SNB) or pdf (files from taking photo NOT accepted).* If you decide to use pdf version, you must learn how to handle pdf files by yourself.

How to Study MA115

(A) Watch **Video Lecture by instructor.**

Linked from Moodle to help you understand the key idea. Most of the lectures are less than 10 minutes.

(B) Read **Note by instructor.**

Make sure you read this before you try Pre-Quiz.

(C) Practice **Pre-Quiz** (SNB or pdf).

SNB: Download the Pre-Quiz (file named *****.qiz**) posted on Moodle. Each time you open the file using SNB, you will see the **DIFFERENT** set of problems. Work on these practice problems, grade by yourself, and read the explanation as many times as you want before taking the actual Quiz. *Students who took MA115 before say "Working on Pre-Quiz was the most helpful in the course."*

pdf: Download the pdf file to try Pre-Quiz.

(D) Take **Quiz** (total 25% of your grade).

After you feel comfortable with the material, take Quiz (similar to Pre-Quiz) on Moodle. You have only one chance to take Quiz. If you miss a Quiz, your point for that Quiz is zero. **TWO** lowest Quiz scores will be dropped. The main purpose of the Quiz is to let you prepare for the "bigger" Tests. Do not worry too much about your low score on a single Quiz.

(E) Watch **Optional Video** if you need more explanation.

(F) Take **THREE TESTS** (each Test 25% of your grade). You are required to

Come to UOG campus to take TEST 1,2,3 (Feb 26, Apr 8, May 13, 5-7pm)

Unlike Quiz you must show all your work. No make-up for Tests. All notes and the textbook are prohibited from use. It is crucial to do well on Tests. Missing any **SINGLE** Test will result in grade **F**. Very special circumstances will be handled very specially by consultation with the instructor. Except for true emergencies, these special cases are arranged in advance with the instructor.

(G) (Optional) Read the Text and do Exercises.

This course is designed based on the recommended textbook giving you the complete understanding of the subject although using the text is optional. (Video/Note by instructor and Pre-Quiz have priority.)

(H) (Optional) Ask Questions on PUBLIC Forum or e-mail INDIVIDUAL Questions to the instructor if necessary.

Grades: The total number of points available is 400. Grades will be no lower than those set forth in the following table. Student's work is usually graded on a partial credit basis. Student's written solutions must include all work needed in order to solve problems. Points will be deducted (or given none) for omitting any work even if the answer is correct.

| | |
|-----------------|-------|
| Quiz (12 times) | 100pt |
| Test 1 | 100pt |
| Test 2 | 100pt |
| Test 3 | 100pt |

| | |
|---|----------|
| A | 90-100 % |
| B | 80-90 % |
| C | 70-80 % |
| D | 60-70 % |
| F | 0-60 % |

Calculators: No calculator allowed until **Test 1**. You may use a calculator for **Test 2, 3**. However, calculators which can do symbolic computation (e.g. TI-89) are **not** allowed. **PC/Mac/Tablet/Cell etc. are not allowed to use for Test.** No calculator swapping is permitted during Tests.

Curriculum Mapping:

| Course SLOs | Program PLOs | UOG ILOs | Method of Assessment |
|-------------|--------------|-------------|--|
| SLO 1 | MA PR 1,4 | ILO 1,2 | Questions on assignments, Quizzes, and Tests |
| SLO 2 | MA PR 1,4 | ILO 1,2 | Questions on assignments, Quizzes, and Tests |
| SLO 3 | MA PR 1,3,4 | ILO 1,2 | Questions on assignments, Quizzes, and Tests |
| SLO 4 | MA PR 1,3,4 | ILO 1,2 | Questions on assignments, Quizzes, and Tests |
| SLO 5 | MA PR 1,2,3 | ILO 1,2,3,5 | Questions on assignments, Quizzes, and Tests |

(Course SLOs)

SLO 1. Demonstrate enhancement of basic fluency, in routine operations of elementary algebra.

SLO 2. Graph and sketch linear, quadratic, polynomial, rational, exponential and logarithmic functions.

SLO 3. Show facility with the analytic treatment of linear, quadratic, polynomial, rational, exponential and logarithmic functions.

SLO 4. Exhibit evidence of a through acquaintance with exponential and logarithmic functions and with applications of these functions in such fields as the mathematics of personal finance, biology and physical science.

SLO 5. Formulate equations from quantitative data, given verbally; use learned algebraic methods to solve simultaneous sets of linear equations, to include the introductory use of elementary matrix methods.

(Math PLOs)

MA PR 1: demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.

MA PR 2: exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).

MA PR 3: argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools.

MA PR 4: apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.

MA PR 5: show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields.

MA PR 6: demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

(UOG ILOs)

ILO 1: Mastery of critical thinking & problem solving

ILO 2: Mastery of quantitative analysis

ILO 3: Effective oral and written communication

ILO 4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context

ILO 5: Responsible use of knowledge, natural resources, and technology

ILO 6: An appreciation of the arts & sciences

ILO 7: An interest in personal development & lifelong learning

Special Accommodations: If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA & TITLE IX Office. If you have not registered with the EEO/ADA & TITLE IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request.

Academic dishonesty: All assignments and tests must be your own work. The term “plagiarism” includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. Plagiarizing in your essay or cheating on tests will be punished with a mark of 0. If a plagiarized essay is not replaced with original work I will assign you a grade of F for the course. There will be no make up for tests. If you are not sure what plagiarism is and how to avoid it in using sources for your work, see www.indiana.edu/~wts/pamphlets/plagiarism.shtml — but be careful when paraphrasing not to change the meaning of scientific information. Answers you write on the tests must come only from in your head or the information supplied in the test papers; anything else is cheating. The term “cheating” includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations, e.g., looking at other students’ answers, using crib notes (including electronic), getting information from another person via any kind of communication; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the University faculty or staff. If you need to use an electronic translator, you must discuss this with me in advance.

Tobacco-free/Smoke-free campus: UOG is a tobacco-free campus. Thank you for not using tobacco products on campus, and for helping make UOG a healthy learning and living environment.

UNIVERSITY OF GUAM

College of Natural and Applied Sciences

Course: MA 151 Introductory Statistics
Meeting: TTH: 12:30 – 13:50 PM (Section 4) / 14:00 – 15:20 PM (Section 5)
17:30 – 16:50 PM (Section 6)
Location: ALS 125B (Section 4 & 5) and WB 3 (Section 6)
Instructor: Brayan Simsiman, B.A. Mathematics
Office hours: By appointment only.
Email: bsimsiman.math@gmail.com

Catalog Course Description:

This course presents statistical methods as applied to the description and display of data, and to drawing conclusions from statistical data, and introduces the basic probability theory needed to understand and use the techniques of elementary statistics.

Prerequisite: MA084b, MA 085 Level II or placement.

Textbook:

Elementary Statistics, A Step by Step Approach, 9th Edition by Allan G. Bluman

Additional Materials and Equipments:

A calculator (preferably scientific or graphing) is required for this course. Laptops and cell phones are not allowed for use **during** quizzes and tests/exams.

Grading policy:

| | |
|----------------|--------------------|
| Participation: | 50 points |
| Quizzes: | 150 points |
| Projects: | 100 points |
| Tests: | 500 points |
| Final Exam: | 200 points |
| Total: | 1000 points |

Final Grade:

900 - 1000 points = A, 800 - 899 points = B, 700 - 799 points = C, 600 - 699 points = D, 0-599 points = F

Quizzes and Tests:

There will be 12 quizzes each worth 15 points. Two lowest quiz scores will be dropped. There will be no make-up for missed quizzes. There will be 3 Tests and a cumulative Final Exam. There will be no make-up tests, unless with the instructor's consent. If the student will not be able to take an exam on scheduled test date, please immediately make proper arrangements prior to the test date.

Assignments and Projects:

Homework will be assigned after each lesson; however homework will not be collected and graded. Homework will be discussed in class. It is the student's sole duty to work on assigned homework problems and additional problem sets to

prepare for quizzes and exams. Quizzes may consist of assigned homework. Students will have the opportunity to work on data sets using Microsoft Excel for data presentation and descriptive analysis as projects. Project details will be discussed at a later time.

Class Participation:

It is mandatory for students to attend each class meeting on time and participate in class discussions. Since homework will be discussed in class, students may be called to present their solution to the class. Students must be ready for each class meeting.

Class Format:

Class meetings will consist of lecture on concepts and their problem solving applications. Students will have the opportunity to ask questions and discuss these concepts with the instructor and among their peers. Quizzes are usually 15 – 20 minutes long and are administered during class time. Students are responsible for printing additional handouts emailed by the instructor prior to the class meeting. Please check your email regularly.

Tentative Class Schedule:

Please refer to the class schedule of lectures, quizzes and exams.

Course Student Learning Objectives:

| Course SLOs: | Program Learning Outcomes (PLOs) | University Learning Outcomes (ILOs) | GE QR Learning Outcomes | Method of Assessment |
|---|---|--|--------------------------------|---|
| Understand the fundamental ideas of statistics, such as variability, types of variables, distribution, association, and sampling. | MA PR-1 | ILO-1 ILO-2 ILO-3 | QR-5 | Questions on homework assignments, quizzes and tests. |
| Construct and interpret graphical summaries of data: histograms, boxplots, bar and pie graphs. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | QR-1 QR-2 | Computer Project |
| Calculate and interpret the numerical summaries of data. Use statistics appropriate to the shape of the data distribution to compare center (median, mean, mode) and spread (interquartile range, standard deviation) of two or more different data sets. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | QR-3 QR-4 | Computer Project Questions on homework assignments, quizzes and tests. |
| Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of outliers. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 ILO-3 | QR-4 QR-5 | Questions on homework assignments, quizzes and tests. |
| Define, and apply the concepts of sample space, events, probability, random variables and their distributions to calculate elementary probabilities. | MA PR-1 MA PR-3 MA PR-5 | ILO-1 ILO-2 ILO-6 | QR-3 | Questions on homework assignments, quizzes and tests. |
| Compute conditional probabilities and use them to determine the independence of events, apply the Bayes' rule. | MA PR-1 MA PR-5 MA PR-6 | ILO-1 ILO-2 ILO-6 | QR-3 QR-4 | Questions on homework assignments, quizzes and tests. |

| | | | | |
|--|---|-------------------------|------------------------------|---|
| Use the sampling distribution of the sample mean to calculate probabilities. | MA PR-1 MA PR-3 | ILO-1 ILO-2 | QR-3 QR-6 | Questions on homework assignments, quizzes and tests. |
| Represent data of two quantitative variables on a scatter plot, compute and interpret the correlation, and describe how the variables are related. (if time permits) | MA PR-1 MA PR-2 MA PR-3 MA PR-4 | ILO-1 ILO-2 | QR-1 QR-2 QR-4 QR-6 | Questions on homework assignments, quizzes and tests. Computer Project |
| Compute the linear regression to make and interpret the model in the context of the data. Use the linear regression to make predictions. (if time permits) | MA PR-1 MA PR-2 MA PR-3 MA PR-4 MA PR-6 | ILO-1 ILO-2 ILO-3 | QR-1 QR-2 QR-4 QR-6 | Questions on homework assignments, quizzes and tests. Computer Project |

QR GE Learning Outcomes:

UOG students will be able to apply analytical and QR reasoning to address complex challenges and everyday problems by:

1. Interpreting information presented in a mathematical and graphical form;
2. Representing information in a mathematical and graphical form;
3. Effectively calculating using quantitative data;
4. Analyzing quantitative information in order to scrutinize it and draw appropriate conclusions;
5. Evaluating the assumptions used in analyzing quantitative data
6. Communicating quantitative information in support or refutation of an argument.

Quantitative Reasoning Assessment:

The University of Guam needs to assess students' quantitative skills as part of WASC accreditation. The test was developed by Dr. Eric Gaze, Director of Quantitative Reasoning at Bowdoin University. It consists of 30 multiple choice questions. The test will not be graded (or affect your final class grade); however, it will count as an extra credit opportunity. Details on how the test will be administered and how much extra credit points will be assigned for participating on the test will be discussed at a later date.

Math Program Learning Outcomes:

MA PR-1: Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.

MA PR-2: Exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).

MA PR-3: Argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools.

MA PR-4: Apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.

MA PR-5: Show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields.

MA PR-6: Demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

UOG Expected Student Learning Outcomes December 2008

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

ILO1: Mastery of critical thinking & problem solving

ILO2: Mastery of quantitative analysis

ILO3: Effective oral and written communication

ILO4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context

ILO5: Responsible use of knowledge, natural resources, and technology

ILO6: An appreciation of the arts & sciences

ILO7: An interest in personal development & lifelong learning

Special Accommodations:

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA & TITLE IX Office. If you have not registered with EEO/ADA & TITLE IX Office, you should do so immediately at 735-2243/2244/2971 (TTY) to coordinate your accommodation request.

Academic dishonesty:

All assignments, quizzes and tests must be your own work. The term “**plagiarism**” includes, but is not limited, to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. Plagiarizing in your essay or cheating on tests will be punished with a mark of 0. If a plagiarized essay is not replaced with original work I will assign you a grade of F for the course. There will be no make up for tests. If you are not sure what plagiarism is and how to avoid it in using sources for your work, see www.indiana.edu/~wts/pamphlets/plagiarism.shtml, but be careful when paraphrasing not to change the meaning of scientific information. Answers you write on quizzes and tests must come only from in your head or the information supplied in the test papers; anything else is cheating. The term “**cheating**” includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations, e.g., looking at other students’ answers, using crib notes (including electronic), getting information from another person via any kind of communication; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the University faculty or staff. If you need to use an electronic translator, you must discuss this with me in advance.

Tobacco- free / Smoke-free campus:

UOG is a tobacco-free campus. Thank you for not using tobacco products on campus, and for helping make UOG a healthy learning and living environment.

NOTE: Syllabus is subject to change.

Spring 2016 MA 151 TTH Tentative Class Calendar

| Date | Scheduled Activity | Quizzes |
|---------------------|--|-----------------|
| 1-21-2016 | INTRODUCTION/SYLLABUS | |
| 1-26-2016 | Section 1.1-1.3 | |
| 1-28-2016 | Section 1.4-1.5 | |
| 2-02-2016 | Section 2.1 | Q1 (Chapter 1) |
| 2-04-2016 | Section 2.2 – Section 2.3 | |
| 2-09-2016 | Section 2.3 | |
| 2-11-2016 | Review | Q2 (2.1-2.3) |
| 2-16-2016 | Test 1 (Chap 1 &2) | |
| 2-18-2016 | Section 3.1 | |
| 2-23-2016 | Section 3.1 – Section 3.2 | |
| 2-25-2016 | Section 3.2 – Section 3.3 | Q3 (3.1) |
| 3-01-2016 | Section 3.3 – Section 3.4 | |
| 3-03-2016 | Section 4.1 | Q4 (3.2) |
| 3-08-2016 | Charter Day | |
| 3-10-2016 | Section 4.1 – Section 4.2 | Q5 (3.3 – 3.4) |
| 3-15-2016 | Section 4.2 – Section 4.3 | |
| 3-17-2016 | Section 4.3 | Q6 (4.1 – 4.2) |
| 3-22 to 3-24 | SPRING BREAK | Q7 (4.3) |
| 3-29-2016 | Review | |
| 3-31-2016 | Test 2 (Chap 3 &4) | |
| 4-05-2016 | Section 5.1 | |
| 4-07-2016 | Section 5.2 | |
| 4-12-2016 | Section 5.3 | Q8 (5.1 – 5.2) |
| 4-14-2016 | Section 5.3 | |
| 4-19-2016 | Section 6.1 | Q9(5.3) |
| 4-21-2016 | Section 6.2 | |
| 4-26-2016 | Section 6.3 | Q10 (6.1 – 6.2) |
| 4-28-2016 | Section 6.4 | |
| 5-03-2016 | Section 10.1 –Section 10.2/QRE Assessment | Q11 (6.3) |
| 5-05-2016 | Review | Q12 (6.4) |
| 5-10-2016 | Test (Chap 5 & 6) | |
| 5-12-2016 | REVIEW | |
| 5-17-2016 | FINAL EXAM | |

NOTE: Calendar is subject to change.

NOTE: Section 10.1 – 10.2 will be covered if schedule permits.

Final Exam Schedule: Spring 2016 Course Catalog

| | | | |
|-----|-------------------|----------------------------------|-------------------|
| TTH | 08:00AM – 09:20AM | TUESDAY, May 17, 2016 | 08:00AM – 09:50AM |
| TTH | 09:30AM – 10:50AM | | 10:00AM – 11:50AM |
| TTH | 12:30PM – 13:50PM | | 12:00PM – 13:50PM |
| TTH | 14:00PM – 15:20PM | | 14:00PM – 15:50PM |
| TTH | 16:00PM – 17:20PM | | 16:00PM – 17:50PM |
| TTH | 17:30PM – 18:50PM | | 18:00PM – 19:50PM |
| | | | |



UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS¹

1. BASIC INFORMATION:

- (a) Semester/year: Spring 2016
- (b) Course: MA*161a: College Algebra
- (c) Class Meeting: T – TH: 1230-1350
- (d) Instructor: Dr. Taijeron
- (e) Office: WA-9
- (f) Phone: 735-2825 (leave message)
- (g) Email: htaijeron@gmail.com
- (h) Office Hours: ***Subject to change with advance notice*****
MW: 1515-1600, 1720-1805
TTH: 1720-1805
Fri: 1450-1620

All other times by appointment upon request

2. CATALOG COURSE DESCRIPTION:

MA*161a includes algebraic, exponential and logarithmic functions, systems of equations and inequalities. MA*161b includes trigonometry, additional algebraic functions, sequences, series and probability. A student may receive credit for either the MA*161a-b sequence or MA*165 course, but not a combination of the two. Prerequisite: Grade of C or better in MA*115, or placement.

3. COURSE CONTENT:

MA161a

Real numbers, Complex numbers, functions and graphs, polynomial functions, rational functions, exponential functions, logarithmic functions, and systems of equations and inequalities. Use of graphing calculator.

MA161b

Continuation of MA161a covering the trigonometric functions, the inverse trig functions, functions involving radicals, analytic trigonometry, and applications of trigonometry. If time permits, sequences and series and topics from analytic geometry will be covered. Use of graphing calculator.

4. TEXTBOOK:

Earl W. Swokowski, Jeffery A. Cole; *Algebra and Trigonometry with Analytic Geometry*; Brooks/Cole, 13th Edition; 2012.

5. RATIONALE FOR OFFERING COURSE:

The Division of Math and Computer Science offers MA161a-b to prepare students for calculus (MA203, Calculus I). A student who is not prepared for MA161a must begin in MA115, and should be able to enroll in calculus after completing and passing MA161b with a grade of C. As a final note, MA161a satisfies the GE requirement for the Essential Skills Category.

6. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Students should be quite familiar with functions and their properties, graphs, algebra, and some geometry. They should have been exposed to functions with at least a background

in linear and quadratic functions and exposure to laws of exponents. They should also be exposed to solving system of equations of a least two variables. MA115 does precisely this. **A graphing calculator is required for this course.**

7. DESCRIBE THE FORMAT OR ACTIVITIES OF THE COURSE

7.1 Class meetings will be conducted as follows:

7.1.1 Lecture Sessions - Instructor will:

- Present concepts in the sections of each chapter being covered;
- Present examples that students will encounter in these sections/concepts and show how to solve problems via examples;
- Provide students the opportunity to ask questions for clarification(s) about the concept being covered or clarification(s) on the examples being presented at any time during the lecture session;
- Quiz may be administered in these sessions.

7.1.2 Workshop Sessions will be announced, where:

- Students will work problems being covered in these sessions (Instructor and/or a TA will be present to assist students with the assigned problems);
- Review materials covered in lecture sessions including review on announced/scheduled exams;
- Quiz may be administered in these sessions;
- If necessary, Section 8.1.1 (lecture sessions) will apply on this day.

7.1.3 Practice Problems:

- These are problems assigned as homework assignments. These assigned problems will be due within the next day or two after they are assigned.

8. CONCEPTUAL STRUCTURE OF THE COURSE:

MA16a-b are foundation courses for the study of calculus. Although it includes some algebra topics, its main objective is the study of the properties, graphs, and applications of functions. These functions include polynomial functions, rational functions, exponential and logarithmic functions, trigonometric and inverse trigonometric functions, and functions involving radicals. As mentioned in Section 6, **a graphing calculator is required for the course.**

9. EVALUATION AND GRADES:

a. Grading Policy

Your final grade for the course will be based on the following:

| | |
|---|------------|
| Mean of workshop problems, practice problems (homework assignments), and quizzes ----- | 30% |
| Mean of in-class exams/midterm exam ----- | 40% |
| Final exam ----- | <u>30%</u> |
| Total: | 100% |

b. Numerical Grade¹ → Letter Grade:

- 90 – 100 → A;
- 80 – 89 → B;
- 70 – 79 → C;
- 60 – 69 → D;
- ≤ 59 → F.

¹All numerical grades are given in % and the % will be rounded off to the nearest integer (hopefully positive!).

10. COURSE POLICIES:

a. Attendance

YOU ARE EXPECTED TO ATTEND CLASSES AND ON TIME, EVERY LECTURE. Missing class will put you behind in the material and cause for you a break in the flow of the course. Don't even bother to come into class if you are ≥ 10 minutes late. Don't leave class early.

b. Assignments (workshop problems and practice problems)

The three most important ways to learn mathematics are to DO PROBLEMS, DO PROBLEMS, AND DO PROBLEMS. Reading the text and listening to lectures, even with complete understanding, cannot substitute for solving problems on your own. Work all workshop and practice problems!

c. Make-up policy

There will be **NO MAKE-UP** workshop or practice problems, **NO MAKE-UP** quizzes, **NO MAKE-UP** in-class exams, and **NO MAKE-UP** final exam. **I DON'T BELIEVE IN MAKE-UP ANYTHING!**

d. Students responsibility

You are expected to be on time for each class (barring unforeseen circumstances). Please keep tardiness and absences to a minimum. If you are absent, it is your responsibility to pick up anything handed out or passed back during your absence, and in a timely manner. Please see me before or after class--or during office hours--to obtain these items, though--not during the day's lesson.

e. It is your responsibility to keep hold of any supplemental material distributed in class. It is also your responsibility to hold on to homework, quizzes and tests passed back to you. Do not assume I always have additional copies of previous handouts, quizzes or tests (or accompanying answer keys) available.

f. It is your responsibility to keep an accurate record of your graded work.

g. Once we begin class I expect you to be here for the full class period. Leaving after the first 10 minutes or arriving right at the end of class is not only of no benefit, it's unduly disruptive. If you are ill, PLEASE stay home and take care of the more important business of getting yourself well. If you are exhausted, PLEASE go home and get in the needed rest, for sleeping in class isn't going to help you learn the day's lesson. PLEASE give me, your fellow classmates, and the learning environment itself the same consideration and respect you yourself would wish and expect.

h. Workshop Sessions

FOR A SUCCESSFUL WORKSHOP:

- **BE PREPARED.** Come to the workshop having read all of the appropriate material from your text. This will increase the number of workshop problems you're able to solve.
- **DO AS MANY PROBLEMS AS POSSIBLE.** Strive to increase the number of problems you're able to solve in one session. You will not make progress if you do not push yourself.
- **YOUR ONGOING COMMITMENT IS NEEDED.** It is highly recommended that you continue to work on any unsolved workshop problems outside the workshop session.

- i. Graphing calculator required.
- j. NO LAPTOPS, NO CELL PHONES, NO DEVICE THAT CAN BE USED TO ACCESS THE INTERNET!!! This rule will be strictly enforced during quizzes and exams!!! There will be times when you will not be allowed to use your calculator during exams and/or quizzes, which will be announced before the exams and/or quizzes.
- k. **All quizzes and exams are closed book, closed notes, closed neighbor, etc. UNLESS INSTRUCTOR OTHERWISE SAY SO!** There will be 2-3 announced in-class exams, a “midterm exam” and a final exam. Recall: NO MAKE UP QUIZ AND NO MAKE UP EXAM EVER-EVER-EVER!!!
- l. Regarding “Cheating”:
 - The first time you are caught cheating on my exam, you will get a zero for the exam. A zero in one of my exams will do “wonders” to your overall numerical average (the mean).
 - The second time you are caught cheating on my exam, YOU WILL FAIL THE COURSE. No buts, No excuses, ..., No anything... YOU WILL FAIL!!!
 - Some examples of cheating:
 - Copying.
 - Talking to your “neighbor” during quiz or exam, passing notes during quiz or exam, doing anything suspicious that “appears” to imply copying, etc.
 - Using a laptop, cell phone, or any device that you can use to access the internet on any of my quiz, in-class exams or the final exam is CHEATING. I tell you what device cannot be used in an exam. If I say you can’t, THEN YOU CANNOT USE IT!!!
 - You are not allowed to use your calculator unless I say that you can. If caught using a calculator in an exam when I said you can’t, IT’S CHEATING.
 - Bottom line: Just don’t do anything suspicious that could be interpreted as “cheating.”
- m. Lastly, it is your responsibility to keep, read and know the contents of this syllabus.

11. SPECIAL NEEDS:

“If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA and TITLE IX Office. If you have not registered with the EEO/ADA and Title IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request.”

12. CALENDAR OR SCHEDULE:

A tentative calendar stating approximate dates of topics to be covered will be provided for students. ***The tentative calendar is subject to change with advance notice**.***

13. DROP DATES:

Please review UOG's policy regarding "withdrawal of classes" (See page 32 of this academic year UOG Catalog).

14. CONTACT INFORMATION FOR CLASSMATES:

Exchange contact info with at least one classmate. Contact your classmate(s) if you miss class or if you want to form a study group.

15. Tobacco-free/Smoke-free/Vaping-free campus:

UOG is a tobacco-free/smoke-free, vaping/e-cigarette free campus. Thank you for not using tobacco products or e-cigarettes on campus, for helping to fight cancer, and for helping make UOG a healthy learning and living environment.

16. STUDENT LEARNING OBJECTIVES AND MA161a-b CURRICULAR MAPPING:

MA161a-b: Student Learning Outcomes

Ever wondered why we require certain courses for general education, or for a given major, or as a prerequisite for another course? Read on below to see what the MA203 student learning outcomes are (what you should expect to learn in this course), how they tie into the Math Program Learning Outcomes, and how they tie into the bigger picture – the University's Institutional Learning Outcomes.

MA161a-b Course Student Learning Outcomes (SLOs)

| Course SLOs: | Program Learning Outcomes (PLOs) | University Learning Outcomes (ILOs) | Method of Assessment |
|--|--|--|--|
| SLO1: Identify functional relationships between two variables, both graphically and algebraically. | MA PR-1 MA PR-3 MA PR-4 MA PR-6 | ILO-1 ILO-2 ILO-5 | Questions on homework, workshops, quizzes and tests. |
| SLO2: Specify the graphical and algebraic characteristics of polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions, and functions involving radicals. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 ILO-5 | Questions on homework, workshops, quizzes and tests. |
| SLO3: Employ mathematical modeling techniques to solve problems using polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric functions, and functions involving radicals. | MA PR-1 MA PR-3 MA PR-4 MA PR-6 | ILO-1 ILO-2 ILO-5 ILO-6 | Questions on homework, workshops, quizzes and tests. |
| SLO4: Demonstrate solving systems of equations and inequalities both graphically and analytically. | MA PR-1 MA PR-3 MA PR-4 MA PR-6 | ILO-1 ILO-2 ILO-5 | Questions on homework, workshops, quizzes and tests. |
| SLO5: . Identify the characteristics of the conic sections, both graphically and algebraically (If time permits to cover conic sections). | MA PR-1 MA PR-3 MA PR-4 MA PR-6 | ILO-1 ILO-2 ILO-5 | Questions on homework, workshops, quizzes and tests. |

(Note: Student Learning Outcomes for MA161a are undergoing revisions.)

Math Program Learning Outcomes:

MA PR-1: demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.

MA PR-2: *exhibit a sound conceptual understanding* of the nature of mathematics, and *demonstrate advanced mathematical skills* in mathematical analysis, modern algebra and other mathematical discipline(s).

MA PR-3: *argue and reason* using mathematics, *read, create* and *write down* logically correct mathematical proofs, *use exact mathematical language* and *communicate mathematics efficiently* orally, in writing and using information technology tools.

MA PR-4: *apply abstract thinking, mathematical methods, models* and *current practices* in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.

MA PR-5: *show maturity in mathematical knowledge and thinking* that prepares and encourages students to pursue graduate studies in mathematics or in related fields.

MA PR-6: *demonstrate an appreciation of and enthusiasm for* inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to *pursue lifelong learning* and *up-to-date professional expertise* in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

**Institutional Expected Student Learning Outcomes:
UOG Expected Student Learning Outcomes December 2008**

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

ILO1: Mastery of critical thinking & problem solving

ILO2: Mastery of quantitative analysis

ILO3: Effective oral and written communication

ILO4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context

ILO5: Responsible use of knowledge, natural resources, and technology

ILO6: An appreciation of the arts & sciences

ILO7: An interest in personal development & lifelong learning

17. ¹BASED ON DR. BARBARA GROSS DAVIS, UC BERKELEY MODEL “CREATING A SYLLABUS”. From the hard copy book *Tools for Teaching* by Barbara Gross Davis; [Jossey- Bass](#) Publishers: San Francisco, 1993. Linking to this book chapter from other websites is permissible. However, the contents of this chapter may not be copied, printed, or distributed in hard copy form without permission. For a more detailed explanation on each numbered section of the syllabus, please visit: <http://teaching.berkeley.edu/bgd/syllabus.html>.



**UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS**

1. BASIC INFORMATION:

- (a) Semester/year: Spring 2016
- (b) Course: MA161a: College Algebra & Trig I (3 credits)
- (c) Class Meeting: Monday and Wednesday : 1230-1350
- (d) Instructor: Mr. Steve Lam
- (e) Class Location: Warehouse B, Room 1
- (f) Phone: 735-5600 (leave message)
- (g) Email: steve.lam@guamcc.edu
- (h) Office Hours: by appointment

2. CATALOG COURSE DESCRIPTION:

MA161a includes algebraic, exponential and logarithmic functions, systems of equations and inequalities. MA161b includes trigonometry, additional algebraic functions, sequences, series and probability. A student may receive credit for either the MA*161a-b sequence or MA165 course, but not a combination of the two. Prerequisite: Grade of C or better in MA115, or placement.

3. COURSE CONTENT:

MA161a

Real numbers, Complex numbers, functions and graphs, polynomial functions, rational functions, exponential functions, logarithmic functions, and systems of equations and inequalities. Use of graphing calculator.

4. TEXTBOOK:

Earl W. Swokowski, Jeffery A. Cole; *Algebra and Trigonometry with Analytic Geometry*; Brooks/Cole, 13th Edition; 2012.

5. RATIONALE FOR OFFERING COURSE:

- Prepare students for calculus (MA203, Calculus I) and other upper level mathematics courses, as well as courses in other STEM disciplines such as physics, pre-engineering, chemistry and biology.
- Satisfies the general education requirement for the Essential Skills Category.

6. SKILLS AND BACKGROUND REQUIRED OR EXPECTED:

Students should be quite familiar with functions and their properties, graphs, algebra, and some geometry. They should have been exposed to functions with at least a background in linear and quadratic functions and exposure to laws of exponents. They should also be exposed to solving system of equations of a least two variables. **A graphing calculator is required for this course.**

7. LECTURES, WORKSHOPS, HOMEWORK, AND QUIZZES:

- 7.1 Class meetings will be conducted as follows:



**UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS**

- 7.1.1 Lecture Sessions - Instructor will:
- Present concepts in the sections of each chapter being covered;
 - Present examples that students will encounter in these sections/concepts and show how to solve problems via examples;
 - Provide students the opportunity to ask questions for clarification(s) about the concept being covered or clarification(s) on the examples being presented at any time during the lecture session;
 - Quiz may be administered in these sessions.
- 7.1.2 Workshop Sessions will be announced, where:
- Students will work problems being covered in these sessions (Instructor and/or a TA will be present to assist students with the assigned problems);
 - Review materials covered in lecture sessions including review on announced/scheduled exams;
- 7.1.3 Practice Problems:
- I will use "coursesites.com" to deliver homework practices. You will be assigned a username and password to access the contents. Each set of practice problems may have multiple attempts and the highest score will be used to calculate toward your course grade.

8 CONCEPTUAL STRUCTURE OF THE COURSE:

MA16a-b are foundation courses for the study of calculus. Although it includes some algebra topics, its main objective is the study of the properties, graphs, and applications of functions. These functions include polynomial functions, rational functions, exponential and logarithmic functions, trigonometric and inverse trigonometric functions, and functions involving radicals. As mentioned in Section 6, **a graphing calculator is required for the course.**

9 EVALUATION AND GRADES:

9.1 Grading Policy

Your final grade for the course will be based on the following:

| | |
|---|------------|
| Mean of workshop problems, practice problems (homework assignments), and quizzes ----- | 30% |
| Mean of in class tests ----- | 40% |
| Final exam ----- | <u>30%</u> |
| Total: | 100% |

9.2 Numerical Grade¹ → Letter Grade:

- 89.5 – 100 → A;
- 79.5 – 89.4 → B;
- 69.5 – 79.4 → C;
- 59.5 – 69.4 → D;
- ≤ 59.4 → F.

¹All numerical grades are given in % and the % will be rounded off to the nearest integer (hopefully positive!).

10 COURSE POLICIES:

10.1 Attendance



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YOU ARE EXPECTED TO ATTEND CLASSES AND ON TIME, EVERY LECTURE. Missing class will put you behind in the material and cause for you a break in the flow of the course. Don't leave class early unnecessarily and without advanced notice.

10.2 Assignments (workshop problems and practice problems)

The three most important ways to learn mathematics are to **DO PROBLEMS, DO PROBLEMS, AND DO PROBLEMS**. Reading the text and listening to lectures, even with complete understanding, cannot substitute for solving problems on your own. Work all workshop and practice problems!

All homework practice assignment are delivered via WWW.COURSESITES.COM and WWW.WEBASSIGN.NET

Course KEY in WEBASSIGN.NET is **guamcc.gu 5404 7273**

10.3 Make-up policy

There will be **NO MAKE-UP** workshop or practice problems and quizzes. **NO MAKE-UP** in-class tests and final exam unless you contact me **IMMEDIATELY** for extenuating circumstances. For example, go off-island, you or your immediate family member will be hospitalized for serious medical treatment, military deployment, etc. **ABSOLUTELY NO RETAKE OF ANY in-class tests and final exams in order to improve the grade.**

10.4 Students responsibility

You are expected to be on time for each class (barring unforeseen circumstances). Please keep tardiness and absences to a minimum. If you are absent, it is your responsibility to pick up anything handed out or passed back during your absence, and in a timely manner. Please see me before or after class--or during office hours--to obtain these items, though--not during the day's lesson.

10.5 It is your responsibility to keep hold of any supplemental material distributed in class. It is also your responsibility to hold on to homework, quizzes and tests passed back to you. Do not assume I always have additional copies of previous handouts, quizzes or tests (or accompanying answer keys) available.

10.6 It is your responsibility to keep an accurate record of your graded work.

10.7 Once we begin class I expect you to be here for the full class period. Leaving after the first 10 minutes or arriving right at the end of class is not only of no benefit, it's unduly disruptive. If you are ill, **PLEASE** stay home and take care of the more important business of getting yourself well. If you are exhausted, **PLEASE** go home and get in the needed rest, for sleeping in class isn't going to help you learn the day's lesson. **PLEASE** give me, your fellow classmates, and the learning environment itself the same consideration and respect you yourself would wish and expect.

10.8 Workshop Sessions

FOR A SUCCESSFUL WORKSHOP:

- **BE PREPARED.** Come to the workshop having read all of the appropriate material from your text. This will increase the number of workshop problems you're able to solve.



**UNIVERSITY OF GUAM
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- DO AS MANY PROBLEMS AS POSSIBLE. Strive to increase the number of problems you're able to solve in one session. You will not make progress if you do not push yourself.
- YOUR ONGOING COMMITMENT IS NEEDED. It is highly recommended that you continue to work on any unsolved workshop problems outside the workshop session.

10.9 Graphing calculator required.

10.10 NO LAPTOPS, NO CELL PHONES, NO DEVICE THAT CAN BE USED TO ACCESS THE INTERNET!!! This rule will be strictly enforced during quizzes and exams!!! There will be times when you will not be allowed to use your calculator during exams and/or quizzes, which will be announced before the exams and/or quizzes.

10.11 **All in-class tests are closed book, closed notes, closed neighbor, etc. UNLESS INSTRUCTOR OTHERWISE SAY SO!** There will be FIVE scheduled in-class tests and a final exam.

10.12 Regarding "Cheating":

- The first time you are caught cheating on my exam, you will get a zero for the exam. A zero in one of my exams will do "wonders" to your overall numerical average (the mean).
- The second time you are caught cheating on my exam, **YOU WILL FAIL THE COURSE.** No buts, No excuses, ..., No anything... **YOU WILL FAIL!!!**
- Some examples of cheating:
 - Copying.
 - Talking to your "neighbor" during quiz or exam, passing notes during quiz or exam, doing anything suspicious that "appears" to imply copying, etc.
 - Using a laptop, cell phone, or any device that you can use to access the internet on any of my quiz, in-class exams or the final exam is **CHEATING.** I tell you what device cannot be used in an exam. If I say you can't, **THEN YOU CANNOT USE IT!!!**
 - You are not allowed to use your calculator unless I say that you can. If caught using a calculator in an exam when I said you can't, **IT'S CHEATING.**
 - Bottom line: Just don't do anything suspicious that could be interpreted as "cheating."

10.13 Lastly, it is your responsibility to keep, read and know the contents of this syllabus.

11 SPECIAL NEEDS:

"If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me or the Institutional Compliance Officer privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA and TITLE IX Office. If you have not registered with the EEO/ADA and Title IX Office, you should do so immediately at 735-2244, (TTY) 735-2243 to coordinate your accommodation request."



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COURSE SYLLABUS

12 CALENDAR OR SCHEDULE:

A tentative calendar stating approximate dates of topics to be covered will be provided for students. *The tentative calendar is subject to change with advance notice**.*

| No | Date | | Important Days | Activities |
|-----------|------------|--------------|---|---|
| 1 | Wed | 01/20 | First Day of Class Real Numbers | Introduction, Lectures 1.1 |
| 2 | Mon | 01/ 25 | Exponents & Radicals | Lectures 1.2 |
| 3 | Wed | 01/ 27 | Algebraic & Fractional Expressions | Lectures 1.3-1.4 |
| 4 | Mon | 02/ 01 | Equations & Applications | Quiz 1.1-1.4; Lectures 2.1-2.2 |
| 5 | Wed | 02/ 03 | Quadratic Equations | Lectures 2.3 |
| 6 | Mon | 02/08 | Complex No. & Other Types of Equations | Quiz 2.1-2.3; Lectures 2.4-2.5 |
| 7 | Wed | 02/10 | Inequalities | Lectures 2.6-2.7 |
| 8 | Mon | 02/15 | Review Workshop Chapter 1 & 2 | Quiz 2.5-2.7; Practice Test 1 |
| 9 | Wed | 02/17 | Test 1 | Chap 1 & 2 |
| 10 | Mon | 02/22 | Coordinates Systems, Graphs, & Lines | Lectures 3.1 to 3.3 |
| 11 | Wed | 02/24 | Functions & Graphs of Functions | Quiz 3.1- 3.3; Lectures 3.4-3.5 |
| 12 | Mon | 02/29 | Quadratic Functions | Quiz 3.4-3.5; Lectures 3.6 |
| 13 | Wed | 03/02 | Operations on Functions | Lectures 3.7 |
| | Mon | 03/07 | Guam History & Chamorro Heritage Day! (NO CLASS) | |
| 14 | Wed | 03/09 | Review Workshop Chapter 3 | Quiz 3.6-3.7; Practice Test 2 |
| 15 | Mon | 03/14 | Test 2 | Chapter 3 |
| 16 | Wed | 03/16 | Polynomial Functions & Division | Lectures 4.1-4.2 |
| | Mon | 03/21 | Spring Break (Mar 21 to Mar 27) | |
| 17 | Wed | 03/23 | Zeros of Polynomials | Quiz on 4.1-4.2; Lectures 4.3-4.4 |
| 18 | Mon | 03/28 | Rational Functions & Variation | Lectures 4.5-4.6 |
| 19 | Wed | 03/30 | Review Workshop Chapter 4 | Quiz on 4.3-4.6 Practice Test 3 (Home) |
| 20 | Mon | 04/04 | Test 3 | Chapter 4 |
| 21 | Wed | 04/06 | Inverse, Exponential, Natural Exponential Functions | Lectures 5.1-5.3 |
| 22 | Mon | 04/11 | Logarithmic Functions | Quiz on 5.1-5.3; Lectures 5.4-5.6 |
| 23 | Wed | 04/13 | Review Workshop Chapter 5 | Quiz on 5.4-5.6; Practice Test 4 |
| 24 | Mon | 04/18 | Test 4 | Test 4 – Chapter 5 |



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| | | | | |
|-----------|------------|--------------|---------------------------|-----------------------------------|
| 25 | Wed | 04/20 | Algebra of Matrices | Lectures 9.6 |
| 26 | Mon | 04/25 | Inverse of a Matrix | Lectures 9.7 |
| 27 | Wed | 04/27 | Determinants | Quiz on 9.5-9.7; Lectures 9.8-9.9 |
| 28 | Mon | 05/02 | Review Workshop Chapter 9 | Quiz on 9.8-9.9; Practice Test 5 |
| 29 | Wed | 05/04 | Test 5 | Chapter 9 |
| 30 | Mon | 05/09 | Wrap-ups | Final Review Workshop |
| | Mon | 05/16 | Final Exam | 12:00p-2:00p |

13 DROP DATES:

January 26, 2016 - last day to drop classes without transcript record entry.

May 13, 2016 - last day to withdraw from classes.

Please review UOG's policy regarding "withdrawal of classes" (See this academic year UOG Catalog).



UNIVERSITY OF GUAM
COLLEGE OF NATURAL AND APPLIED SCIENCES
COURSE SYLLABUS

14 STUDENT LEARNING OBJECTIVES AND MA161a-b CURRICULAR MAPPING:

| MA16a-b Course Learning Outcomes (SLOs) | Mathematics Degree Program Learning Outcomes (PLOs) | UOG's Institutional Learning Outcomes (ILOs) | |
|--|--|--|------------------------------|
| SLO1: Identify functional relationships between two variables, both graphically and algebraically. | PLO1: Demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, and classifying, analyzing, synthesizing, data and abstract ideas in various contexts and situations. | ILO1: Mastery of critical thinking & problem solving. | |
| SLO2: Specify the graphical and algebraic characteristics of polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions, and functions involving radicals. | PLO2: Demonstrate the knowledge of current mathematical applications, computing practices and technology use in industry, and science and education. | ILO2: Mastery of quantitative analysis | |
| SLO3: Employ mathematical modeling techniques to solve problems using polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric functions, and functions involving radicals. | PLO3: Demonstrate ability to use modern software, abstract thinking, and mathematical practices connected to scientific and industrial problems, and demonstrate these skills that are currently used by technologies in society and education. | ILO3: Effective oral and written communication | |
| SLO4: Demonstrate solving systems of equations and inequalities both graphically and analytically. | PLO4: Perform skills that enable them to evaluate, propose and convey novel solutions to scientific and business problems, etc. | ILO4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context | |
| SLO5: . Identify the characteristics of the conic sections, both graphically and algebraically (If time permits to cover conic sections). | PLO5: Demonstrate a sense of exploration that enables students to pursue lifelong learning and currency in their careers in mathematics, statistics, education, high-tech and bi-tech industries. | ILO5: Responsible use of knowledge, natural resources, and technology | |
| | | ILO6: An appreciation of the arts & sciences | |
| | | ILO7: An interest in personal development & lifelong learning | |
| CURRICULAR MAPPING FOR MA161a-b | | | |
| COURSE SLOs | PROGRAM PLOs | UOG ILOs | METHODS OF ASSESSMENT |
| SLO1 | PLO1. PLO2 | ILO1, ILO2, ILO3 | Questions on homework |



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| | | | |
|------|------------------------|------------------------|--|
| | | | assignments, quizzes, workshop problems and tests. |
| SLO2 | PLO1, PLO2, PLO3, PLO4 | ILO1, ILO2, ILO3, ILO5 | Questions on homework assignments, quizzes, workshop problems and tests. |
| SLO3 | PLO1, PLO3, PLO4 | ILO1, ILO2, ILO5, ILO6 | Questions on homework assignments, quizzes, workshop problems and tests. |
| SLO4 | PLO1, PLO3, PLO4 | ILO1, ILO2 | Questions on homework assignments, quizzes, workshop problems and tests. |
| SLO5 | PLO1, PLO2 | ILO1, ILO2 | Questions on homework assignments, quizzes, workshop problems and tests. |



**UNIVERSITY
OF GUAM**
Unibetsedåt
GUAHAN

College of Natural and Applied Sciences
Mathematics and Computer Science

Course: MA165 Precalculus (5 credits)
Semester: Spring 2016
Meetings: MTWTh 1600 – 1720
Room: SC101

Instructor: Dr. Leslie C. Aquino
Office: Warehouse B, Room 10
Telephone: 735-2832
Email: AquinoL8112@triton.uog.edu

Office hours: Monday and Wednesday 1330 – 1530
Tuesday and Thursday 1000 – 1100
(subject to change with advance notice)

Catalog Description:

Topics include algebraic, exponential and logarithmic functions; systems of equations and inequalities; trigonometry; sequences and series. A student may receive credit for either the MA161a-b sequence or the MA165 course, but not a combination of the two.

Text: *Algebra and Trigonometry with Analytic Geometry, 13th edition, by Swokowski and Cole*

Rationale for Course:

Satisfies general education requirements. Required for STEM (science, technology, engineering, mathematics) majors. Prepares students for calculus and other upper level mathematics courses, as well as courses in other STEM disciplines such as physics, pre-engineering, chemistry, and biology.

Prerequisites:

Grade of C or better in MA115, or placement into MA165.

Calculator:

You are required to have a scientific calculator, and a graphing calculator is highly recommended. Students are expected to have a working scientific calculator for quizzes and tests, for those times when a calculator will be allowed. No electronic calculators on tablets, smartphones, or laptops permitted during testing periods. No calculator swapping is permitted during testing periods, and you are still expected to show all required work to receive full credit.

Attendance:

Your attendance in class is encouraged and is directly related to your grade (see Evaluation below). Please inform the instructor if you will be absent. We will run into occasions when we absolutely cannot make it to class. I am subject to those environmental and familial setbacks too. However, we must make it a point to attend all class sessions on time.

Moodle:

I will be using Moodle to post the syllabus and any additional course documents and handouts. I will also use this as a place where you can see which topics we are covering each week, and to post any

announcements made in class (like quiz and test dates). **Be sure to create a Moodle account and use an email address that you check regularly so that you will receive notifications of any new posts for our class.** You will need an enrollment key to access the course within Moodle, which will be given out in class, or you can contact me via email to request the enrollment key.

Evaluation:

40% Quizzes and Workshops (*will drop two lowest scores*)
60% Chapter Tests (*typically two chapters per test*)

100% Total percentage

Letter grades will be assigned as follows:

90 – 100% A
80 – 89% B
70 – 79% C
60 – 69% D
0 – 59% F

Tests are given at the end of each chapter cluster. Dates for quizzes and tests will be announced in class, and posted to Moodle after class.

Our **last test** will be during Exam Week, on **Monday, May 16, 2016**, from 1600 – 1750.

NO MAKE-UPS. Contact instructor IMMEDIATELY via telephone/email for extenuating circumstances.

Make-up policy:

There will be no make-up quizzes or tests unless you contact the instructor IMMEDIATELY for extenuating circumstances. For example, you have to go off-island, you will be hospitalized or under serious medical treatment, deployment, etc.

Workshop, Homework, and Quizzes:

Homework problems will be assigned for each class meeting but **will not** be collected and graded. **Quiz problems will be taken directly from the homework problems assigned.** Workshop problems **will** be collected and graded. You may need to do additional problems from the textbook to fully master a topic, even if those problems were not assigned. You should ask workshop and homework questions at all class meetings or during workshop and office hours. Keep in mind that quizzes and tests are based on workshop and homework problems.

Quantitative Reasoning (QR) Assessment:

As part of the University's efforts to prepare for accreditation, UOG will assess students on the core competencies of Critical Thinking, Information Literacy, Oral Communication, Quantitative Reasoning, and Written Communication. Our class will be participating in the Quantitative Reasoning (QR) Assessment this semester. This will consist of a 30-question online or paper test, which will take one class period. The assessment will be conducted near the end of the semester; the exact date will be announced in class. **Note: Students participating in the QR Assessment will receive 10 points of extra credit to be added to their lowest test score, to improve their overall test average.**

Student Responsibility:

You are expected to spend 1-1½ hours of outside study for each hour inside the classroom. Do not commit the two cardinal sins in a mathematics course: **falling behind and leaving unanswered questions unanswered.** Both will complicate your life and cause a lot of unnecessary stress.

Remember, **MA165 is a five-credit course.** We meet four times a week and we will cover a lot of topics this semester. In order to succeed, you will need to put in the appropriate amount of time outside of class. So, read the textbook before class, work as many practice problems as you can, write down questions you have as you read or work problems, and ask your questions in class. You will feel a sense of confidence and accomplishment for all problems you complete and attempt. And, since this is a gateway to upper-level math and science courses, practice is the best way to build your math intuition and ensure you have a solid foundation. **Your grade is a direct reflection of the amount of time you put into this class.**

The following are some important notes concerning student responsibilities:

- Please do not ask for a copy of my notes for a day on which you were absent. Employ the buddy system to get copies of any notes you might need. It's probably a good idea to start exchanging phone numbers (or e-mail addresses) with classmates *now* in the event of such a need *later*.
- If you are absent, it is your responsibility to pick up anything handed out or passed back during your absence, and in a timely manner. Please see me before or after class--or during office hours--to obtain these items, though--not during the day's lesson.
- It is your responsibility to keep hold of any supplemental material distributed in class. It is also your responsibility to return to your **folder** all quizzes and tests passed back to you.
- Check Moodle regularly (at least once a week) to see if there are any announcements you may have missed in class, or to keep track of the topics we are covering each week.
- It is your responsibility to keep an accurate record of your graded work. Again, do not assume I always have my to-the-moment grade sheets ready.
- If you are ill, **STAY HOME** and take care of the more important business of getting yourself well. If you are exhausted, PLEASE go home and get in the needed rest, for coming to class feeling sleepy isn't going to help you much with the day's lesson.
- Lastly, it is your responsibility to keep, read and know the contents of this syllabus.

Special Accommodations:

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me privately to discuss your specific needs. You will need to provide me with documentation concerning your need for accommodation(s) from the EEO/ADA Office. If you have not registered with the EEO/ADA Office, you should do so immediately at 735-2244/2971/2243 (TTY) to coordinate your accommodation request.

Academic dishonesty:

All assignments and tests must be your own work. Cheating on quizzes or tests will be punished with a mark of 0. There will be no make-ups for missed tests or quizzes; see Make-up policy for extenuating circumstances. Answers you write on quizzes or tests must come only from in your head or the information supplied in the test papers; anything else is cheating. The term "**cheating**" includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations, e.g., looking at other students' answers, using crib notes (including electronic), getting information from another person via any kind of communication; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the University faculty or staff. If you need to use an electronic translator, you must discuss this with me in advance.

Tobacco-free/Smoke-free/Vaping-free campus:

UOG is a tobacco-free/smoke-free, vaping/e-cigarette free campus. Thank you for not using tobacco products or e-cigarettes on campus, for helping to fight cancer, and for helping make UOG a healthy learning and living environment.

Welcome!

AND FINALLY...Welcome to MA165! This class will move at a good pace through the textbook, but should be fun and interesting for those who come to class ready to listen, learn, and ask questions when they don't understand a particular concept or can't read my writing on the board.

MA165 – Tentative Schedule – Spring 2016

| | |
|---------------|----------------------------------|
| Weeks 1 – 3 | Ch. 1 & 2 |
| Weeks 4 – 6 | Ch. 3 & 4 |
| Weeks 7 – 11 | Ch. 5 & 6 |
| (Week 10 | Spring Break) |
| Weeks 11 – 13 | Ch. 7 & 8 (selected topics) |
| Weeks 14 – 17 | Ch. 9, 10 & 11 (selected topics) |

(This is a tentative schedule, and is subject to change, should a topic require more or less time in class.)

MA165 – Learning Objectives and Outcomes

Ever wondered why we require certain courses for general education, or for a given major, or as a prerequisite for another course? Read on below to see what the MA165 student learning objectives are (what you should expect to learn in this course), how they tie into the Math Program Learning Outcomes, and how they tie into the bigger picture – the University’s Institutional Learning Outcomes.

MA165 Course Student Learning Objectives (SLOs)

| Course SLOs: | Program Learning Outcomes (PLOs) | University Learning Outcomes (ILOs) | Method of Assessment |
|--|---|--|--|
| Identify functional relationships between two variables, both graphically and algebraically. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |
| Specify the graphical and algebraic characteristics of polynomial, rational, exponential, logarithmic, and trigonometric functions. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |
| Employ mathematical modeling techniques to solve problems using polynomial, rational, exponential, logarithmic, and trigonometric functions. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |
| Sketch the graphs of different kinds of functions, identify their domain and range, and construct new functions from a given set of functions. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |
| Demonstrate an understanding and application of systems of equations, and the various methods for solving them. | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |
| Demonstrate an understanding of infinite sequences and geometric series. (Time permitting) | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |
| Gain basic familiarity with conic sections, both graphically and algebraically. (Time permitting) | MA PR-1 MA PR-3 MA PR-4 | ILO-1 ILO-2 | Questions on homework, workshops, quizzes and tests. |

(Note: Student Learning Outcomes for MA165 are undergoing revisions.)

Math Program Learning Outcomes:

MA PR-1: *demonstrate critical thinking, problem solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.*

MA PR-2: *exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).*

MA PR-3: *argue and reason* using mathematics, *read, create* and *write down* logically correct mathematical proofs, *use exact mathematical language* and *communicate mathematics efficiently* orally, in writing and using information technology tools.

MA PR-4: *apply abstract thinking, mathematical methods, models* and *current practices* in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.

MA PR-5: *show maturity in mathematical knowledge and thinking* that prepares and encourages students to pursue graduate studies in mathematics or in related fields.

MA PR-6: *demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity* in mathematical sciences, a sense of exploration that enables them to *pursue lifelong learning* and *up-to-date professional expertise* in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

(Note: Math Program Learning Outcomes are undergoing revisions.)

**Institutional Expected Student Learning Outcomes:
UOG Expected Student Learning Outcomes December 2008**

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

ILO1: Mastery of critical thinking & problem solving

ILO2: Mastery of quantitative analysis

ILO3: Effective oral and written communication

ILO4: Understanding & appreciation of culturally diverse people, ideas & values in a democratic context

ILO5: Responsible use of knowledge, natural resources, and technology

ILO6: An appreciation of the arts & sciences

ILO7: An interest in personal development & lifelong learning