



Syllabus
MAC1147 Pre-Calculus Algebra and Trigonometry

Term: FALL 2009-1

Reference #:537171

Instructor's Name: Elsis Reyes

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Office: Math Lab, Room # 2223

Mail-box: Math Lab, Room # 2223

Office Hours: TR: 10:20 AM – 10:50AM, 1:30 PM – 1:50 PM

To leave a message for the instructor, please call the Math Lab at 305-237-3834 during its hours of operation:

MTWR 8:00 AM - 9:00 PM

F 8:00 AM - 4:00 PM

S 8:00 AM - 4:00 PM.

Course Description:

Topics include all of the topics of MAC1114 and MAC1140

MAC1140: The student will analyze and graph algebraic, exponential, logarithmic, piecewise-defined functions and conic sections. The student will solve polynomial, exponential and logarithmic equations, as well as systems of linear and nonlinear equations. The student will identify arithmetic and geometric sequences and series and solve related problems. The student will use the Binomial Theorem to expand polynomials and solve related problems. The student will use mathematical induction to prove statements regarding the properties of natural numbers. The student will solve applications and modeling problems related to the above topics

MAC1114: Topics include right triangle trigonometry; trigonometric functions of special angles; graphs of trigonometric functions and their inverses; trigonometric identities including sums and differences of angles, double angle, half angle, power reduction, sum to product, and product to sum; trigonometric equations; introduction to vectors; parametric equations; polar coordinates; arcs and sectors; dampened waves; complex numbers

Credits: 5

Pre-requisites

MAC1105 (Grade C or better), or appropriate placement score

Textbook

Precalculus, Graphs and Models, 4th Ed. by Bittinger, Beecher, Ellenbogen, and Penna; Pub Addison-Wesley

At the Instructor's discretion, a TI-83 or TI-84 Graphing Calculator may be required

Assistance

You can obtain assistance for mathematics classes in the Mathematics Laboratory, room 2223. There, you will find course-related videotapes and computer software, and tutors that can help you to successfully complete this course. The Math Lab is open during these hours:

MTWR 8:00 AM - 9:00 PM

F 8:00 AM - 4:00 PM

S 8:00 AM-4:00 PM.

You do not need an appointment to get assistance from the tutors on the Floor, but the tutors on the Floor must help all the students and may have to take turns; they cannot work with one student for a prolonged period of time.

One-to-one tutoring (1 hour long session) is available by appointment only. Please visit the Math Lab and speak to any of the Supervisors to schedule an appointment.

If you have a problem with the Math Lab, please contact any of the supervisors: Arcides Acosta, Maliya Beylin, Jose De Paz, or Verdieu Lucas at 305-237-3834 or visit their offices in room 2223. If *after speaking with a supervisor* the problem persists, then you need to visit the chairperson, Dr. Alicia Giovinazzo (office 1540) as the next step.

Classroom and Laboratory Etiquette

The instructor would like to welcome all students into an environment that creates a sense of community, pride, courtesy and respect; we are all here to work cooperatively and to learn together. In order to create a smooth and harmonious learning community, please make every attempt to come to all the class sessions, to come to class on time, and to stay until the end of the class session unless you have informed your instructor that you must leave early. There may be a time when you are unavoidably late for class. In that case, please come into the room quietly (through the back door if there is one) and choose a seat closest to the entrance.

Once the class session has begun, please do not leave the room and then re-enter unless it is an emergency. If you miss a class meeting for any reason, you are responsible for all material discussed, for announcements made in your absence, and for acquiring any materials that may have been distributed in class. You are responsible for contacting the instructor for this information.

It is important that we are all able to stay focused on the class discussion. For this reason, only one person in the class at a time should be speaking. Side conversations are distracting for surrounding students and for the instructor. Professional behavior is expected at all times. You are encouraged to ask questions.

Please refrain from bringing food or drinks into any classroom or the Math lab.

Beeppers and Cellular telephones must be turned off. ***The vibrate mode is not considered turned off.*** Absolutely no text messaging or instant messaging is allowed in the classroom. The instructor may ask you to leave the classroom for the day if you are caught.

Problems with Instructor

If you are having a problem with your mathematics instructor, please see that instructor **during** office hours. Before or after class is generally not a good time to discuss a problem with an instructor who is either about to start class or on the way to the next class. If *after speaking with your instructor during office hours* you cannot resolve the problem, then you need to visit the chairperson, Dr. Alicia Giovinazzo (office 1540) as the next step.

Professional Student Behavior

The MDC Students' Rights and Responsibilities Handbook describes students' appropriate and inappropriate behaviors, along with their consequences. Additionally, please be aware that cheating, plagiarism, and disruptive behavior are not tolerated and can result in serious consequences such as failure of a course or dismissal from the college. For more information, go to http://www.mdc.edu/policy/student_rights_and_responsibilities.pdf.

Office Hours

Your professor urges you to avail yourself of his/hers individual instruction during office hours. Do not wait until you are in trouble. If you have been absent or late to class, please read the lesson you missed and come to his/her office prepared with questions.

Attendance

The number one key to educational success is to attend classes. Students are responsible for any work missed when absent. Class attendance will be recorded daily. ***Frequent absences may cause you to be drop from the course.*** You should make it an effort to be in class, and on time. *Lateness is rude and disruptive.*

Registration

It is your responsibility to make sure that you are registered for this course. Be sure to obtain a copy of your schedule to verify the reference number and that you do not have any outstanding fees. *You will not be allowed to take the final exam if you are not in your instructor's class roster* so make sure to resolve any issues prior to the final exam date.

Withdrawal

If you feel that you will be unable to complete the requirements for passing this class, it is important that you drop the class by the college's "drop date" as established by the registrar's office. You should speak to your instructor prior to making the decision to drop. Remember that it is your responsibility to drop a class, not the instructor's. If extenuating circumstances such as illness, accident, change in employment situation, etc., prevent you from continuing to attend your class **before** the drop date, speak to your instructor first and if needed, to the Chairperson, Dr. Alicia Giovinazzo (office 1540) to assess your options. If such a situation occurs **after** the drop date, you should contact the instructor for information as to how you can complete the requirements for passing the course.

Homework

At the discretion of the instructor, homework may be completed on line or on paper. Homework completed on paper is turned in to the instructor at the beginning of class on the day of each unit test and is generally checked for completion. All work must be shown. Your complete name and MDC-ID, instructor's name and reference number, book section numbers and problem numbers must be clearly written on your homework. Section numbers must be highlighted. The homework must be turned in stapled together and in the proper order. Homework may not be turned in late.

Grading

In this class, you will have

- 7 Unit Exams
- Short in-class quizzes, at the instructor's discretion
- Online, homework and reviews, at the instructor's discretion
- 2 Mandatory Final Exams (One for Pre-Calculus and the other for Trigonometry) which are cumulative.

Grading scale: The final grade will be based on the following components

Best 6 out of 7 Exams	60%	Average of 90-100%	A
Homework and Quizzes	15 %	Average of 80-89%	B
Average of the 2 Final Exams	<u>25 %</u>	Average of 70-79%	C
Total	100%	Average of 60-69%	D
		Average below 60%	F

In addition, at the discretion of the instructor, students may be assessed through various in-class activities such as board work and small group presentations.

Incomplete

The grade of *I (Incomplete)* is given in the rare case that a student is **passing** a class but for some extenuating circumstance is unable to complete the last part (usually the final exam) of the class. ***If you are not passing your class, it is not possible for your instructor to give you an I.*** Note that you will have one full term (Fall or Winter) to complete the requirements of your Incomplete Contract. If you do not complete your requirements in that time, the **I** generally will automatically change to an **F** on your records. The instructor makes the determination as to whether you are eligible for an Incomplete.

MDC Email Account

Students are **required** to activate and use their MDC email account. The MDC account allows students to receive email from their instructors and get notification/announcements or other pertinent information from the College

Important Dates

Class begins		
Weekdays and Evening		M Aug 24
Weekend (Saturday and Sunday)		S Aug 29
Last day to Withdraw with a Grade of W		T Nov 3
Last day of Final Exams		F Dec 18
Holidays	Labor Day: S Sep 5, U Sep 6, M Sep 7	
	Veterans Day: W Nov 11	
	Thanksgiving: R Nov 26, F Nov 27, S Nov 28, U Nov 29	

Miami-Dade Learning Outcomes

As graduates of Miami Dade College, students will be able to:

1. Communicate effectively using listening, speaking, reading, and writing skills.
2. Use quantitative analytical skills to evaluate and process numerical data.
3. Solve problems using critical and creative thinking and scientific reasoning.
4. Formulate strategies to locate, evaluate, and apply information.
5. Demonstrate knowledge of diverse cultures, including global and historical perspectives.
6. Create strategies that can be used to fulfill personal, civic, and social responsibilities.
7. Demonstrate knowledge of ethical thinking and its application to issues in society.
8. Use computer and emerging technologies effectively.
9. Demonstrate an appreciation for aesthetics and creative activities.
10. Describe how natural systems function and recognize the impact of humans on the environment.

Each course taken at the college addresses some of these learning outcomes. Pre-Calculus and Trigonometry (MAC 1147) addresses outcomes 1, 2, 3, 4, 5, 8, 9.

- Communicate effectively using listening, speaking, reading, and writing skills.
This course requires reading and understanding the material covered in the textbook. Students will need to pay attention in class and may periodically be asked to explain a concept discussed in class.
- Use quantitative analytical skills to evaluate and process numerical data.
In this class, you will have to be able to read and identify numerical information (data) in different real world problems and applications. You will be required to manipulate the data-information using models, equations.
- Solve problems using critical and creative thinking and scientific reasoning.
Critical thinking is an essential skill for all professionals. When solving problem it is necessary to understand the problem and to determine which method may be used to solve the problem. Then one must also decide whether or not the result(s) make sense. Critical thinking and scientific reasoning are part of the methods or procedures that you may need to use solving problems or real world problems in this course.
- Formulate strategies to locate, evaluate, and apply information.
In the real world applications students have the opportunity to locate, evaluate and apply information in the solution of problems.
- Demonstrate knowledge of diverse cultures, including global and historical perspectives.
The development of mathematics and some historical math events are lightly touched upon in this course, and in the research paper. Value the contribution of different cultures to mathematics.
- Use computer and emerging technologies effectively.
Most homework assignments and quizzes will be posted on line on the Course Compass/My Math Lab website. Students will develop the ability to use these computer resources to monitor their progress in the course and to help them reach a better understanding of the concepts, ideas and applications discussed in the course. They will also have the opportunity to use the external links posted on the website to explore topics related to the course goals and objectives.
- Demonstrate an appreciation for aesthetics and creative activities.
Value the creativity of the human being in the way they use and development Mathematics to solve problems in real life.

MAC1147

Syllabus, Homework Assignments Tentative Schedule

Sect.	Topic	Suggested Homework
1.2	Function and Graphs	1-6 All, 15-81 Odd, 95-109 Odd
2.1	Increasing, Decreasing, and Piecewise Functions	1-43 Odd. 47-64 Alternated Odd, 71,73
2.3	The Composition of Functions	
2.4	Symmetry and Transformations	
3.2	Quadratic Equations, Functions, Zeros and Models	1-20 Odd, 21,23, 27-115 Alternated Odd
3.3	Analyzing Graphs of Quadratic Functions	1-55 Odd
4.1	Polynomial Functions and Modeling	1-25 Odd, 27-49 Alternated Odd, 51-56 All
4.2	Graphing Polynomial Functions	1-39 Odd
4.3	Polynomial Division; The Remainder and Factor Theorems	1-53 Odd
4.4	Theorems about Zeros of Polynomial Functions	1-77 Odd
4.5	Rational Functions	1-31 Odd, 33-73 Alternated Odd, 73-83 All
4.6	Polynomial and Rational Inequalities	1-23 Odd, 25-75 Alternated Odd, 77,78,79
===== Exam # 1 =====		
5.1	Inverse Functions	1-81 Odd
5.2	Exponential Functions and Graphs	1-55 Odd
5.3	Logarithmic Functions and Graphs	1-93 Odd
5.4	Properties of Logarithmic Functions	1-75 Odd
5.5	Solving Exponential and Logarithmic Equations	1-63 Odd
5.6	Applications and Models: Growth and Decay; Compound Interest	1-34 All
9.3	Matrices and System of Equations	
===== Exam # 2 =====		
9.4	Matrix Operations	1-28 All, 39-45 All
9.6	Determinants and Cramer's Rule	1-44 Odd
10.1	The Parabola	1-34 All
10.2	The Circle and the Ellipse	1-53 All
10.3	The Hyperbola	1-39 All
10.4	Nonlinear Systems of Equations and Inequalities	1-53 Odd
11.1	Sequences and Series	1-73 Odd
===== Exam # 3 =====		
11.2	Arithmetic Sequences and Series	1-47 Odd
11.3	Geometric Sequences and Series	1-65 Odd
11.4	Mathematical Induction	1-21 Odd
11.7	The Binomial Theorem	1-27 Odd
===== Exam # 4 =====		
Review for Pre-Calculus Final		
===== Cumulative Pre-Calculus Final Exam =====		
6.1	Trigonometric Functions of Acute Angles	1-101 Odd
6.2	Applications of Right Triangles	1-41 All

Sect.	Topic	Suggested Homework
6.3	Trigonometric Functions of Any Angle	1-97 Odd
6.4	Radians, Arch Length, and Angular Speed	1-73 Odd
6.5	Circular Functions: Graphs and Properties	1-56 Odd
6.6	Graphs of Transformed Sine and Cosine Functions	1-67 Odd
===== Exam # 5 =====		
7.1	Identities: Pythagorean and Sum and Difference	1-30 All, 31-75 Odd
7.2	Identities: Cofunction, Double-Angle, and Half Angle	1-40 All
7.3	Proving Trigonometric Identities	1-56 All
7.4	Inverse of the Trigonometric Functions	1-67 Odd
7.5	Solving Trigonometric Functions	1-49 Odd
===== Exam # 6 =====		
8.1	The Law of Sines	1-31 All
8.2	The Law of Cosines	1-35 All
8.3	Complex Numbers: Trigonometric Form	1-75 Odd
8.4	Polar Coordinates and Graphs	1-97 Alternated Odd
8.5	Vectors and Applications	1-42 All
8.6	Vector Operations	1-85 Odd
===== Exam # 7 =====		
Review for Trigonometry Final		
===== Cumulative Trigonometry Final Exam =====		