

Virginia State University
School of Engineering, Science, and Technology
Department of Mathematics and Computer Science
Course Syllabus: Math 111 – Introduction to College Algebra and Trigonometry
SPRING 2009

Instructor's Name: _____ **Office:** _____ **Ext:** _____
Instructor's E-mail address: _____ **Section:** _____
Course Meeting Days, Time & Place: _____

Instructor's Scheduled Office Hours:

| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|--------|---------|-----------|----------|--------|
| | | | | |

Course Coordinator: Dr. George W. Wimbush, e-mail: gwimbush@vsu.edu, Tel: 524-5293, Office: 301Sa HM

Objectives of the Course: The primary goal of this course is to improve the mathematical background of the student to enable her/him to successfully pursue the mathematical course specified in her/his curriculum, namely: MATH 120 – College Algebra and Trigonometry.

The course is designed to:

- (1) permit each student to begin her/his study of mathematics at her/his level of mathematics competence.
- (2) prepare students for the mathematics course specified in her/his curriculum that requires the knowledge of elementary algebra.
- (3) improve the student's attitude toward mathematics.
- (4) implement the Basic Mathematics standards, described by the Commission Standards of the National Council of Teachers of Mathematics (NCTM).

Textbooks:

Sullivan, Michael , Algebra And Trigonometry, Eighth Edition, Pearson Prentice Hall, 2008.

Course Requirements: Textbook and a scientific **Graphing** Calculator: TI-83, TI-83 Plus, TI-83 Silver Edition, TI-84, TI-84 Plus, TI-84 Plus Silver Edition , TI-Nspire or TI-89.

MyMathLab Student Access Kit

Class Attendance: Class attendance is mandatory for freshman students. Absence (including excused absence) does not relieve a student of completing or making up all missed assignments. It is the student's responsibility (not the professor's) to make certain that all required academic content is made up.

Pedagogy: This course will focus on group work activities and drill work instead of the traditional lecture three/two hours a week. Generally, the instructor will lecture only one hour per week where the remaining class time is spent in assigned or unassigned seat work exercises, practice work or study in the classroom.

Mastery Level: The mastery level for MATH 111 is a “C.” Although a student may successfully complete the course with a passing grade of a “D”, she/he tends to encounter difficulties in attaining success in the next course in the mathematics sequence: MATH 120.

Assignments: Class Assignments and Online Homework are required and will count for 25% of the midterm grade and 20% of the final grade. Each student **MUST** purchase the following: **MY MATH LAB, Student Access Kit** (available from the bookstore and pre-packaged with new textbooks). **MY MATH LAB** is the online resource for completing and submitting assignments.

Writing Exercises: “Discussion and Writing” problems are colored red. These support class discussion, verbalization of mathematical ideas, and writing and research projects.

‘Are You Prepared?’ Problems: These assess your retention of the prerequisite material you’ll need. Answers are given at the end of the section exercises. Working these problems is the best way to find out if you remember what you’ve learned. If you get one wrong, you’ll know exactly what you need to review and where to review it.

Concepts and Vocabulary: These short-answer questions, mainly Fill-in-the-Blank and True/False items, assess your understanding of key definitions and concepts in the current section. These problems help you understand the ‘big ideas’ before diving into skill building.

Skill Building: These problems provide you with ample practice to dig in and develop Your skills. These problems provide straightforward practice and are correlated to section exercises.

Applications and Extensions: These problems allow you to apply your skills to real-world problems. These problems will also allow you to see that the material learned in this section has many uses in everyday life.

“Now Work” Problems: Many examples refer you to a related homework problem. If you get stuck while working problems, look for the closest “Now Work” problems and refer back to the related example to see if it helps. These related problems are marked by a pencil and yellow number..

Mathematics/Computer Science/Statistics Tutoring Laboratory: The Tutoring Laboratory is located on the basement floor of Hunter-McDaniel Building, Room 7S. Faculty members and student laboratory assistants (graduate mathematics majors and senior mathematics majors) are available 9 AM to 6 PM , Monday thru Friday. A schedule for the laboratory hours will be given to you by your instructor.

Evaluation and Grading: Evaluation and grading will be accomplished as follows:

Point Distribution:

Midterm Grade:

| | |
|-------------------------------|------------|
| 3 Tests @ 50 points each | 150 points |
| MyMathLab Homework/Class Work | 25 |
| Midterm Exam | 25 |

Total 200 points

$$\text{Midterm Average} = .50(\text{Test Ave.}) + .25(\text{HW/CW/QZ}) + .25(\text{Midterm Exam})$$

Final Grade:

| | |
|--------------------------------|------------|
| 6 tests@50 points each | 300 points |
| MyMathLab Homework/ Class Work | 100 |
| Final Exam | 100 |

Total 500 points

$$\text{Final Average} = .6(\text{Test Ave.}) + .2(\text{MML HW/CW}) + .2(\text{Final Exam})$$

The grading scale is: A (90 – 100); B (80 – 89); C (70 – 79); D (60- 69); F (59 and below). Students who desire to test out of the course must make a score of 80 or above on the pretest and their Mathematics Placement test score must greater than or equal to 30.

Resources for Students: Student Solutions Manuel, CD Lecture Series (contains short video clips of an instructor working key book examples and are packaged at the back of the textbook), and the Chapter Test Prep Video CD , packaged also at the back of the text, provides students with step-by-step solutions for each of the exercises in the book's chapter test.

Learning Outcomes and Evaluation Procedures.

Knowledge

The student will

- 1.. Know the steps for solving a linear equation; know how to complete the square; know how to write the quadratic formula and the discriminate of the quadratic equation and tell how many solutions to expect; know the definition of a complex number and how to add, multiply, subtract and; and divide complex numbers.
2. Know how to write inequalities using interval notation; know the addition, multiplication and reciprocal properties of inequalities and know the definition of absolute value.

3. Know the formulas for distance, midpoint, slope, parallel lines, direct variation and inverse variation; know the equation of vertical and horizontal lines; know the slope-intercept equation form and general form of the equation of a line; and know the standard form and general form of the equation of a circle and the equation of the unit circle.

Skills

The student will be able to ...

1. Solve a linear equation; solve a quadratic equation by factoring and by using the quadratic formula; solve radical equations; solve inequalities; solve equations involving absolute value; solve interest, mixture, uniform motion and constant rate job problems.
2. Use the distance formula, the midpoint formula; graph key equations; find intercepts from a graph and from an equation; graph equations by plotting points; graph lines using a point and a slope; identify the slope and y-intercept of a line from its equation; find equations of parallel and perpendicular lines; graph a circle; and work with the general form of a circle.

Abilities

The student will be able to ...

1. Evaluate an algebraic expression and check a solution to a linear equation and linear inequality; find a linear regression equation by using data points; and graph the data and the regression line on the same screen.
2. Evaluate numerical expressions; graph inequalities; find distance on the real number line; evaluate algebraic expressions and square roots; use scientific notation; understand congruent triangles and similar triangles; factor the difference of two squares and the sum and difference of two cubes; factor perfect squares; factor second-degree polynomials: $x^2 + Bx + C$ and $Ax^2 + Bx + C$, $A \neq 1$; and simplify expressions with rational exponents.
3. Solve applied problems involving linear equations and quadratic equations; solve combined inequalities; solve inequalities involving absolute value; and translate verbal descriptions into mathematical expressions.
4. Test an equation for symmetry with respect to the x-axis, the y-axis, and the origin; interpret the slope of a line; write the equation of the slope of a line in slope intercept-form; write the standard form of the equation of a circle; and construct a model using direct, inverse, joint or combined variation.

Course Requirements:

1. Attend class regularly and on time, coming in late or leaving early should be avoided.
2. Eating and drinking are not permitted in the classroom.
3. Phones and pagers are to be turned off during class.
4. Complete MY MATH LAB assignments by the due date.
5. Purchase and read the required texts and related material
6. Purchase and learn to effectively use a TI-83/84/89 graphing calculator.
7. Participate actively in class problem solving exercises.
8. Perform satisfactorily on examinations.
9. Students who are covered under the American Disability Act should privately inform the teacher of this fact so that appropriate instructional arrangements can be made for the student. All university policies specified in the Student Handbook regarding cheating, plagiarism, absenteeism, etc., will be strictly enforced.

MATH 111 Pretest:

Any student whose pretest score is 80 or greater and whose Mathematics Placement Test Score is greater than or equal to 30 has the option of remaining in MATH 111 or enrolling into MATH 120 .

Test Retest:

Students who do not make a score of at least 70 on a chapter / sectional test may be permitted to redo that test, known as a test retest, for that chapter(s) or section(s) if they want to improve their grade. There are two options: (1) A student may use the Recitation and Test Retest Assignment Schedule for the Spring Semester 2009 by meeting with the designated MATH 111 Tutor to seek help in solving the assigned problems, and work out the assigned (20 – 40) problems . The Tutor will sign the Test Retest Assignment Sheet to verify that progress has been made and that a student is now ready to retake a different form of that chapter/sectional test. The student will bring the assignment to her/his Instructor's office with the Tutor's signature on it; or (2) A student may go to MyMathLab, Click on Take A Test , scroll down under Sample Tests to the specific section or chapter (0-A, 0-B, 1-A, 1-B, . . . , 6-A, 6-B, 8-A, or 8-B) and take a test (Form A or Form B), 10 – 20 questions, an infinite number of times until they get an average score of 80. The computer scores the test and gives the average score. A student can print out her/his results, bring it to their instructor who will give the student a Test Retest. A time and date for the Test Retest will be determined by the student and instructor.

Course Outline

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|--|---|
| Pretest Review: First Class Period | January 20 / January 21 |
| Pretest: | January 22 / January 23 |
| Chapter 1: Linear Equations and Quadratic Equations | Sections: 1.1 – 1.2 |
| Test 1 | Sections: 1.1 – 1.2 February 2/ February 3 |
| Chapter 1: Complex Numbers and Radical Equations | Sections: 1.3 – 1.4 |
| Test 2: | Sections: 1.3 – 1.4 February 16/ February 17 |
| Chapter 1: Solving Inequalities and Equations and Inequalities Involving Absolute Value | Sections: 1.5 – 1.6 |
| Test 3: | Section 1.5 – 1.6 March 2 / March 3 |
| Chapter 1: Problem Solving: Interest, Mixture, Uniform Motion, And constant Rate Job Applications | Section: 1.7 |
| Midterm Examination | March 12 / March 13 Chapter 1 |
| Spring Break | No Classes March 15 – March 22 |
| Chapter 2: Graphs The Distance and Midpoint Formula and Graphs of Equations in Two Variables; Intercepts; Symmetry | Sections: 2.1 – 2.2 |

Test 4:

Section 2.1 – 2.2
April 6 / April 7

Chapter 2:

Lines ; Circles

Sections: 2.3 – 2.4

Test 5:

Sections: 2.3 – 2.4
April 16 / April 17

Chapter 2:

Variation

Section 2.5

Test 6:

Section 6
April 27 / April 28

University Classes End
University Reading Day
Final Examination(Cumulative):

Monday, May 4, 2009
Tuesday, May 5, 2009
Wednesday - Saturday
May 6 – May 9, 2009