

Virginia State University
School of Engineering, Science and Technology
Department of Mathematics and Computer Science
Course Syllabus: Spring 2009
MATH 120 - College Algebra & Trigonometry - 3 credits

Instructor's Name: _____ **Office Location:** _____

Office Phone: _____ **E-mail:** _____

Departmental Fax Number: (804) 524-5746

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday

Course Coordinator: Ms. Azzala Owens, Room 301sb HM, Phone: 524-5425, E-mail: aowens@vsu.edu

Course Description: This course is designed for students who plan to pursue college majors in the fields of science and technology, interdisciplinary studies, or business. This course is a pre-calculus mathematics course in algebra. Specific topics to be covered include functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, and systems of equations and inequalities.

Course Textbook and Supplements: Sullivan, Michael (2008). Algebra and Trigonometry 8th Edition. Upper Saddle River, New Jersey: Prentice-Hall, Inc.

MyMathLab Student Access Kit

Other Course Material: A graphing calculator, Texas Instruments TI-83, TI-83 Plus, TI-84, or TI-84 Plus is required for this course. Each student is expected to have access to his or her own calculator. **Calculators may be used for all work but may not be shared during quizzes, tests and/or examinations.** Calculators with symbolic manipulations capabilities are not allowed on quizzes, tests, and/or examinations. Some examples of these are TI-89, TI-92, and HP-48 series.

LEARNING OUTCOMES AND EVALUATION PROCEDURES

KNOWLEDGE:

After completing this course, the student will:

1. Know the concepts of a function, the graphs of functions, inverse functions, composition of functions, and other properties of functions.
2. Identify polynomial and rational functions.
3. List and cite the zeros of polynomial and rational functions.
4. Know the various graphing and algebraic approaches to solving systems of linear equations

and inequalities.

5. Know how to use a graphing calculator and a computer software tutorial.
6. Relate reading and writing skills to describe mathematical concepts and critical thinking processes to the solutions of various word problems.
7. Know graphic, symbolic, and verbal representations of problems.
8. Define exponential and logarithmic functions.
9. Know how to solve exponential and logarithmic equations.

Evaluation Strategies: All knowledge criteria will be evaluated by homework assignments, quizzes, class discussions, class presentations, in-class activities, and tests.

SKILLS:

After completing this course, the student will:

1. Identify and interpret the graphs of functions, inverse functions, and composition of functions.
2. Classify and apply polynomial and rational functions.
3. Find the zeros of polynomial and rational functions.
3. Use the various graphing and algebraic approaches to solve systems of equations and inequalities.
5. Use the graphing calculator and work through a computer software tutorial.
6. Apply reading and writing skills to describe mathematical concepts and critical thinking processes to the solutions of various word problems.
7. Interpret graphic, symbolic, and verbal representation of problems.
8. Recognize exponential and logarithmic functions, their properties, and their graphs.
9. Apply various properties of exponential and logarithmic functions.
10. Demonstrate the difference between natural and common logarithms.
11. Draw exponential and logarithmic functions using a graphing calculator.

Evaluation Strategies: All skills criteria will be evaluated by homework assignments, quizzes, class discussions, class presentations, in-class activities, and tests.

ABILITIES:

After completing this course, the student will:

1. Create and analyze the graphs of functions, inverse functions, and composition of functions.
2. Analyze polynomial and rational functions.
3. Evaluate polynomial and rational functions.
4. Compare and test the various graphing and algebraic approaches to solve systems of equations and inequalities.
5. Analyze problem situations using a graphing calculator and a computer software tutorial.
6. Integrate reading and writing skills to describe mathematical concepts and critical thinking

processes to the solutions of various word problems.

7. Create graphic, symbolic, and verbal representation of problems.
8. Solve a system of linear equations using the elimination and substitution methods.
9. Compare exponential and logarithmic functions and their characteristics, including their graphs.
10. Distinguish and relate the natural logarithm to the common logarithm.
11. Plot exponential and logarithmic functions using a graphing calculator.

Evaluation Strategies: All abilities criteria will be evaluated by homework assignments, quizzes, class discussions, class presentations, graphing calculator activities, special assignments using computer software, in-class activities, and tests.

ADDITIONAL EVALUATION STRATEGIES:

The student will also be evaluated on:

1. A common departmental midterm examination.
2. A common departmental final examination.
3. Other work as assigned by the instructor.

COURSE REQUIREMENTS:

The student is required to:

1. Attend class regularly and on time.
2. Be present on test dates.
3. Turn in written homework assignments by the due date.
4. Purchase and read the required texts and related material.
5. Purchase and learn to effectively use a graphing calculator.
6. Participate actively in class problem solving exercises.
7. Perform satisfactorily on examinations.

The University's policies on specific academic regulations concerning cheating, plagiarism, absenteeism, etc. will be adhered to in this course. These policies are stated in the VSU Undergraduate Catalog and the VSU Student Handbook.

Students with learning or other disabilities who are covered under the American Disability Act should privately inform the teacher of this fact so that appropriate instructional arrangements can be made.

EVALUATION STRATEGIES:

The student will be evaluated on four tests, a midterm exam, a common departmental comprehensive final examination, written and online homework, quizzes or other work assigned by

the instructor.

GRADING:

Each student's grade will be determined by the following criteria:

Midterm Grade:

Tests (2) @ 50 points each	100 points
Homework/Class Work/Quizzes	50
Midterm Exam	50

Total	200 points
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$$\text{Midterm Average} = .5(\text{Test Ave.}) + .25(\text{HWK/CW/QZ Ave.}) + .25(\text{Midterm Exam})$$

Final Grade:

4 tests@50 points each	200 points
Homework/Class Work/Quizzes	100
Midterm Exam	100
Final Exam	100

Total	500 points
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$$\text{Final Average} = .4(\text{Test Ave.}) + .2(\text{HWK/CW/QZ Ave.}) + .2(\text{Midterm Exam}) + .2(\text{Final Exam})$$

Midterm and final letter grades will be assigned as follows:

A: 90 - 100 B: 80 - 89 C: 70 - 79 D: 60 - 69 F: Below 60

TUTORIAL ASSISTANT

Mathematics Tutoring Laboratory (Room 7S HM)

The Department of Mathematics and Computer Science has provided a one-on-one mathematics tutoring laboratory in Room 7S Hunter McDaniel Building for students who need extra help. The Mathematics Laboratory will open the first day of class. The hours of operations are 9:00 AM - 6:00 PM, Monday to Friday. Ms. Eleanor Poarch-Wall is the coordinator.

Recitation Sessions

Recitation sessions will be held to provide students with extra practice in problem solving. Your instructor will provide you with additional information

COURSE BIBLIOGRAPHY

Blitzer, Robert. (2004). Precalculus 2nd Ed. Upper Saddle River, NJ: Prentice Hall.

Dugopolski, Mark. (2003). College Algebra 3rd Ed. Boston, MA: Addison Wesley.

Hungerford, Thomas W. (2001). Contemporary College Algebra and Trigonometry: A Graphing Approach. Orlando, FL: Harcourt College Publishers.

Larson, Ron. & Hostetler, Robert. (2004). Algebra and Trigonometry 6th Ed. Boston, MA: Houghton Mifflin Company.

Department of Mathematics and Computer Science
MATH 120 - College Algebra and Trigonometry (3 Credit Hours)
Course Content
Spring 2009

Textbook: Algebra and Trigonometry 8th Edition by Michael Sullivan

Chapter 3 Functions and Their Graphs

- Section 3.1 – Functions
- Section 3.2 – The Graph of a Function
- Section 3.3 – Properties of Functions
- Section 3.4 – Library of Functions; Piecewise-defined Functions
- Section 3.5 – Graphing Techniques: Transformations
- Section 3.6 – Mathematical Models: Building Functions (**Selected problems: 1, 7, and 9 pp. 267-269**)

Chapter 4 Linear and Quadratic Functions

- Section 4.1 – Linear Functions and Their Properties
- Section 4.2 – Building Linear Functions from Data
- Section 4.3 – Quadratic Functions and Their Properties
- Section 4.4 – Quadratic Models: Building Functions

Chapter 5 Polynomial and Rational Functions

- Section 5.1 – Polynomial Functions and Models
- Section 5.2 – Properties of Rational Functions (Omit Oblique Asymptotes)
- Section 5.3 – The Graph of a Rational Function

Chapter 6 Exponential and Logarithmic Functions

- Section 6.1 – Composite Functions
- Section 6.2 – One-to-One Functions: Inverse Functions
- Section 6.3 – Exponential Functions
- Section 6.4 – Logarithmic Functions
- Section 6.5 – Properties of Logarithms
- Section 6.6 – Logarithmic and Exponential Equations

Chapter 12 Systems of Equations and Inequalities

- Section 12.1 – Systems of Linear Equations: Substitution and Elimination (Systems of two equations in two variables)

If time permits, additional sections might be covered at the discretion of your instructor.

The midterm exam will cover Chapters 3 and Chapter 4.

The final exam will be comprehensive and include all the sections covered in this course during this semester.