

**COLLEGE ALGEBRA FLEX EXPRESS  
MAT 151 COURSE SYLLABUS  
PARADISE VALLEY COMMUNITY COLLEGE  
FALL 2008**

INSTRUCTOR: Stephen J. Nicoloff  
e-mail: [stephen.nicoloff@pvmail.maricopa.edu](mailto:stephen.nicoloff@pvmail.maricopa.edu)  
web page: <http://www2.pvc.maricopa.edu/~nicoloff>  
Phone: 602-787-6676  
Office Hours: M-F 11:00 AM – 11:50 AM  
Office: Building G, Room 134

TEXT:

*College Algebra with Modeling and Visualization* 3rd Edition Gary Rockswold  
(Course ID: nicoloff86389)

OTHER RESOURCES:

Learning Support Center (LSC) Building E, Room 180  
Hours: M-R 8:00 AM – 7:00 PM  
Friday 8:00 AM – 5:00 PM  
Saturday 9:00 AM – 1:00 PM  
Drop-in and individual Tutoring

MAT 108. This course provides structured tutorial assistance and math study skills to help students achieve success in a mathematics course in which they are concurrently enrolled. Mathematics study skills are emphasized. This course may be repeated for a maximum of 10 credits. Co-requisites: Concurrent enrollment in MAT151.

On-line chat, on the web at:<http://pvc.blackboard.maricopa.edu/> TBD

Scheduled weekly office hour.

CLASS LOCATION:

Building E, Room 146

SECTION NUMBER:

7776

## COURSE DESCRIPTION:

Analysis and interpretation of the behavior and nature of functions including polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions; systems of equations, modeling and solving real world problems. Additional topics may include matrices, combinatorics, sequences and series, and conics. Prerequisites: Grade of "C" or better in MAT120, or MAT121, or MAT122, or equivalent, or satisfactory score on District placement exam.

## COURSE COMPETENCIES:

Upon successful completion of this course, you will have mastered the following basic competencies:

- Analyze and interpret the behavior of functions, including end behavior, increasing and decreasing, extrema, asymptotic behavior, and symmetry.
- Solve polynomial, rational, exponential, and logarithmic equations analytically and graphically.
- Find real and complex zeros of polynomial functions analytically and graphically.
- Graph polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions.
- Determine domain and range of polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions.
- Use transformations to graph functions.
- Perform operations, including compositions, on functions and state the domain of the resulting function.
- Determine whether a relation is a function when represented numerically, analytically, or graphically.
- Determine whether a function is one-to-one when represented numerically, analytically, or graphically.
- Determine the inverse of a relation when represented numerically, analytically, or graphically.
- Classify functions by name when represented numerically, analytically, or graphically.
- Determine regression models from data using appropriate technology and interpret results.
- Read and interpret quantitative information when presented numerically, analytically, or graphically.
- Justify and interpret solutions to application problems.
- Compare alternative solution strategies.
- Calculate and interpret average rate of change.
- Model and solve real world problems.
- Solve systems of three linear equations in three variables.
- Solve systems of linear inequalities.
- Communicate process and results in written and verbal formats.

### **PVCC General Education Learning Outcome: Problem Solving**

This course will help you meet PVCC's General Education Problem Solving Outcome by enabling you to define problems, collect and analyze quantitative information, develop reasonable interpretations and appropriate mathematical models to solve problems, compare alternative solution strategies, and communicate process and results. Your ability to use quantitative methods to analyze information and solve problems will be measured using PVCC's cross-discipline rubric which measures the following dimensions of problem solving:

1. Define the problem.
2. Develop a plan to solve the problem.
3. Collect and analyze appropriate information.
4. Interpret findings to determine plausible solutions.
5. Evaluate the effectiveness of the problem-solving process and the results obtained.
6. Communicate the results.

### **PVCC MATHEMATICS/COMPUTER SCIENCE DIVISION EXPECTED STUDENT BEHAVIOR FOR SUCCESS**

- As a college student you need to discipline yourself as to your study habits and classroom behavior. Get to class at least a couple of minutes early. You are expected to at least be on time for each class and remain seated for the entire class. If you must leave early, it is considered only common courtesy to leave quietly and to have informed your instructor beforehand. Please leave beepers, ipods, cell phones and other electronic devices off. Inattentiveness, disruptiveness or extensive tardies/absences may affect a student's grade.
- If for some reason you decide to drop this course, you are advised to discuss it first with your instructor. If you are having difficulties, please see your instructor before giving up or dropping the class. You will not be automatically dropped. It is your responsibility to get the appropriate paperwork signed. A grade of W will be assigned if you drop before 2/29/2008. If you drop after that date your drop grade will reflect your status at that time, you will get a W if you are passing and a Y if you are failing. If you are still on the class roster at the end of the semester, you will be assigned a grade of A, B, C, D or F, based on your class average.
- Undergraduate study is time consuming. You can anticipate spending two or more hours of study, reading and research for every hour you spend in the classroom. To earn three hours of academic credit, classes must meet for a minimum of forty-five (45) classroom hours. Take these demands seriously as you plan your academic schedule.
- Have your homework completed before class starts. Please feel free to contact me whenever you run into difficulty, and make use of the LSC.
- Have questions ready from the previous night's homework and be seated when class begins.
- Continuously self test.

- Make it a goal to attend all classes and stay the entire class period. There is a high correlation between regular class attendance, punctuality, and good grades. Even though you are absent for any reason, you are still responsible for all homework and material covered in class. Get notes from another student for classes missed.
- Ask questions – participate, don't wait for someone else to ask questions.
- Be prepared as if you expect a quiz every day.
- It is the student's responsibility to understand and follow all of the policies found in the College Catalog and Student Handbook.
- The student is responsible for all information contained in the syllabus.
- Make note of Article III, Section B, paragraph 15, page 171 in the PVCC Student Handbook regarding the college's policy on the misuse of computer technology.
- Make note of the college's policy on Academic Misconduct Section 2.3.11 found on pages 149 through 150.
- Students with disabilities who believe that they need accommodations in this class are encouraged to contact the Disability Resource Center in the Gina Kranitz Student Center, Room 119 or call 602-787-7170

**ALL PROVISIONS IN THIS SYLLABUS ARE SUBJECT TO REVISION BY THE INSTRUCTOR. SUCH REVISIONS, IF ANY, WILL BE ANNOUNCED IN CLASS AND POSTED ON THE INSTRUCTOR'S WEBSITE AT THE FOLLOWING ADDRESS:** <http://www2.pvc.maricopa.edu/~nicoloff/changes.html>

#### COURSE WORK:

You are expected to spend 4 hours per week on the computer doing your lessons. All parts of the *Homework and Study Plan* must be done by the required due date. (See the tentative schedule section) One (1) point may be deducted from your homework grade for each hour less than the recommended 4 hours per week.

#### CLASS ATTENDANCE:

This class is a 4 credit hour course. As such, attendance in this class will be determined by being online to do course work a minimum of 4 hours per week. You will also be required to make contact with your instructor at least once a week as part of your attendance. This requirement may be in 3 different ways:

- a. An email with a comment on your progress,
- b. An office visit, or
- c. Participating in the weekly on-line chat.

## ASSIGNMENTS:

Assignments will be worth 150 pts. toward the final grade. They consist of online homework worth 100 points and additional assignments worth 50 points.

Do the online homework problems only after you have done the *Lesson Video* on the computer! Late homework will not be accepted. The due dates are on the page with the schedule. Extenuating circumstances will be allowed only with prior approval from the instructor.

## TESTING:

There will be four tests, worth 150 pts. each and a final exam worth 200 pts. All of the lessons for each topic covered on the tests must be done completely before the test is taken.

**Tests must be taken on Tuesday of the week given!! Special consideration may be made if Tuesday is not possible. But no test may be taken after Thursday of that week.**

## GRADING:

Homework	150	A=90-100%	855-950 pts
Tests	600	B=80-89%	760-854 pts
Final Exam	200	C=70-79%	665-759 pts
Total	950	D=60-69%	570-664 pts

## TENTATIVE COURSE SCHEDULE

WEEK OF	SECTIONS TO BE COVERED	TOPICS TO BE COVERED	ASSIGN # DUE DATE
8/25	<b>1st Class Meeting</b>		
	<b>Introduction</b>	<b>Introduction</b>	#1 9/1
	1.1	Numbers, Data, and Problem Solving	
	1.2	Visualization of Data	
	R.2	Circles	
9/1	1.3	Functions and Their Representations	#2 9/8
	1.4	Types of Functions and Their Rates	
	2.1	of Change	
	2.2	Linear Functions and Models	
		Equations of Lines	
9/8	2.3	Linear Equations	#3 9/15
	2.4	Linear Inequalities	
	2.5	Piecewise-Defined Functions	
9/15	<b>2nd Class Meeting</b>		#4 9/22
	3.1	Quadratic Functions and Models	
	3.2	Quadratic Equations and Problem	
	3.3	Solving	
	<b>TEST I</b>	Quadratic Inequalities	
		<b>CHAPTERS (1 &amp; 2)</b>	
9/22	3.4	Transformations of Graphs	#5 9/29
	4.1	Nonlinear Functions and Their	
	4.2	Graphs	
		Polynomial Functions and Models	
9/29	4.3	Real Zeros of Polynomial Functions	#6 10/6
	4.4	The Fundamental Theorem of	
	4.5	Algebra	
		Rational Functions and Models	

10/6	4.6 4.7 5.1	Polynomial and Rational Inequalities Power Functions and Radical Equations Combining Functions	#7 10/13
10/13	<b>3rd Class Meeting</b> 5.2 5.3 5.4 <b>TEST II</b>	Inverse Functions and Their Representations Exponential Functions and Models Logarithmic Functions and Models <b>CHAPTERS (3 &amp; 4)</b>	#8 10/20
10/20	5.5 5.6 5.7	Properties of Logarithms Exponential and Logarithmic Equations Constructing Nonlinear Models	#9 10/27
10/27	<b>4th Class Meeting</b> 6.1 <b>TEST III</b>	Functions and Equations in Two Variables <b>CHAPTER 5</b>	#10 11/3
11/3	6.2 6.3	Systems of Equations and Inequalities in Two Variables Systems of Linear Equations in Three Variables	#11 11/10
11/10	6.4 6.5	Solutions to Linear Systems using Matrices Properties and Applications of Matrices	#12 11/17
11/17	6.6 6.7	Inverses of Matrices Determinants	
11/24	<b>5th Class Meeting</b> <b>TEST IV</b>	<b>CHAPTER 6</b>	

12/1

Review

**REVIEW**

12/8

FINAL EXAM

**FINAL EXAM**

## STUDENT INFORMATION/SYLLABUS ACKNOWLEDGEMENT FORM

Course Prefix & Number \_\_\_\_\_ Semester \_\_\_\_\_

Lecture Section Number \_\_\_\_\_ Today's Date \_\_\_\_\_

Name (print) \_\_\_\_\_ Phone # (\_\_\_\_) - \_\_\_\_\_

e-mail address \_\_\_\_\_ 4 Digit Personal ID # \_\_\_\_\_

Previous Math courses	High School	College	Final grade

Why are you taking this course? What is it about this course that you need for your degree program?

What are you going to do to succeed in this class? (*ie*: When are you going to do your homework? Will you join a study group? Will you attend every class?)

What would you like me to do to help you succeed in this class?

Other comments:

### **SYLLABUS ACKNOWLEDGMENT/RECEIPT**

I have received a copy of the syllabus for this course, and the instructor has discussed the contents of the syllabus. I have read the syllabus and understand the course content, class procedures, and what is expected of me in this class.

\_\_\_\_\_  
Student Signature

