

***MAT 151 – College Algebra, MAT 172 – Finite Mathematics, and
MAT 182 - Trigonometry
Course Syllabus
Fall 2009***

***Important Note For All Online Mathematics Students
(Read Carefully)***

Online mathematics courses require extensive self teaching through reading, watching online lecture videos, and completing online homework assignments. It, therefore, requires approximately 9 to 15 hours per week to be successful. To be sure that you are ready for these online mathematics courses, please visit and carefully review our readiness website at <http://www.mc.maricopa.edu/dept/d25>.

Instructor Information

Instructor John Seims
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E-Mail Address seims@mesacc.edu (Please see ***Student-Instructor Correspondence*** below)
Office PV225 (Red Mountain)
Office Hours By Appointment

Course Information

<i>Course(s)</i>	MAT 172 – Finite Mathematics Section 35662	MAT 182 – Trigonometry Sections 35678
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MAT 151 Specific Information

Course Description This course will cover the concepts of relations and functions; polynomial functions; exponential and logarithmic functions; systems of equations and inequalities; matrices; sequences and series. Course Note: May receive credit for only one of the following: MAT 150, MAT 151, MAT 152, or MAT 187.

Prerequisites Grades of "C" or better in MAT 120 or MAT 121 or MAT 122 or equivalent, or satisfactory score on the district placement exam. Course Note: May receive credit for only one of the following: MAT 150, MAT 151, MAT 152, or MAT 187.

Materials You will need the following materials for MAT 151:

- *College Algebra: Concepts Through Functions* by Sullivan and Sullivan, 2007, Pearson Publishing with MyMathLab Access Code OR you can access an online version of the textbook by purchasing the MyMathLab Access Code online.
- Graphing Calculator (TI-83+ or TI-84 preferred) or, if you cannot afford one, you can download the TI-89 emulator at <http://www.mc.maricopa.edu/~seims/> for free. Follow the instructions carefully.
- A reliable Windows based computer or Macintosh running Windows.
- A MCC e-mail account.
- A reliable internet connection.
- Optional: Student Solutions Manual

MAT 172 Specific Information

Course Description An introduction to the mathematics required for the study of social and behavioral sciences. Includes combinatorics, probability, descriptive statistics, matrix algebra, linear programming and the mathematics of finance. Includes applications of technology in problem-solving. Prerequisites:

Prerequisites Grade of "C" or better in MAT150, or MAT151, or MAT152, or MAT187 or equivalent, or satisfactory score on District placement exam.

Materials You will need the following materials for MAT 151:

- *Finite Mathematics with Applications* by Lial, Hungerford, and Holcome, 2007, Pearson Publishing with MyMathLab Access Code OR you can access an online version of the textbook by purchasing the MyMathLab Access Code online.
- Graphing Calculator (TI-83+ or TI-84 preferred) or, if you cannot afford one, you can download the TI-89 emulator at <http://www.mc.maricopa.edu/~seims/> for free. Follow the instructions carefully.
- A reliable Windows based computer or Macintosh running Windows.
- A MCC e-mail account.
- A reliable internet connection.
- Optional: Student Solutions Manual

MAT 182 Specific Information

Course Description A study of measures of angles, properties of graphs of trigonometric functions, fundamental identities, addition and half-angle formulas, inverse trigonometric functions, solutions of trigonometric equations, complex numbers and properties of triangle solution. May receive credit for only one of the following: MAT 182 or MAT 187.

Prerequisites Prerequisites: Grade of "C" or better in MAT 150, or MAT 151, or MAT 152, or equivalent, or concurrent registration in MAT 150, or MAT 151, MAT 152, or satisfactory score on District placement exam.

Materials You will need the following materials for MAT 182:

- *Trigonometry* by Mark Dugopolske, 2007, 2nd Edition, Addison-Wesley Publishing with MyMathLab Access Code OR you can access an online version of the textbook by purchasing the MyMathLab Access Code online.
- A scientific or graphing calculator (TI-83+ or TI-84 preferred) or, if you cannot afford one, you can download the TI-89 emulator at <http://www.mc.maricopa.edu/~seims/> for free. Follow the instructions carefully.
- A reliable Windows based computer or Macintosh running Windows.
- A MCC e-mail account.
- A reliable internet connection.
- Optional: Student Solutions Manual

Assessment Your grade in the class will be determined using the following assessment instruments (graded items, such as tests).

Important Note To Students Outside the Phoenix/Mesa Area

If you do not live in the area and if you are required to take the final exam in person, you must procure a appropriate proctored testing site to complete the final exam. Local colleges or universities usually have testing facilities that students can use, but they usually charge a proctoring fee. You are responsible for this fee. Once you obtain a proctored testing site, you must forward to me the name of the site, as well as the name, phone number, fax number, and e-mail address of the director so that I can verify the appropriateness of the site. This information must be obtained at least one week prior to the exam so I can verify the information. Failure to do this will result on a zero for the exam. You will need to provide picture identification to the proctored testing site.

Graded Assessment Items (Will Count Toward Your Grade)

Homework Assignments – You will have a homework assignment each week of the class to complete online. These homework assignments should be completed after reading the appropriate sections and watching the sections’ lecture videos (available online within each section). These homework assignments are designed to make sure you are maintaining progress throughout the class. You should not wait until the last minute to complete your homework assignments. **You can work on the assignments throughout the week. You do not have to complete the homework assignments in one sitting.**

Tests – You will have timed, online tests in this class. These tests will be designed to assess your comprehension of the concepts and skills, as well as your ability to apply the concepts and skills to real-world situations (application problems). It is strongly recommended that you do NOT use your textbook or notes during the test (although this is not prohibited). You will have a three day window (including one or two weekend day(s)) to complete the tests. Since you have two attempts at each test, you should take the first attempt early and, if you do not do well on the first attempt, study a bit more and take the second attempt. The highest score of the two attempts at each test will be counted toward your grade.

Final Exam – You will be required to complete a final exam in this class. The final exam will assess your comprehension of the concepts and skills, as well as your ability to apply the concepts and skills to real-world situations. For MAT 151, the final exam will include the material covered during the second half of the course (Chapters 3, 4, 5, 6, and 7). For MAT 182, the final exam will include all the material covered in this class. **IF THE FINAL EXAM IS TO BE TAKEN IN PERSON, FINAL EXAM MUST BE TAKEN IN THE RED MOUNTAIN TESTING CENTER (OR APPROPRIATE PROCTORED TESTING SITE). BRING PICTURE IDENTIFICATION. YOU WILL BE MADE AWARE OF HOW THE FINAL EXAM WILL BE ADMINISTERED TWO WEEKS BEFORE THE FINAL EXAM.** Neither notes nor the textbook may be used when completing the final exam. You may use a graphing calculator. You will be given **two hours** to complete the final exam. You will be given a three day window in which to complete the final exam. Further information about the final will be posted on the Announcement page as we get closer to the exam.

IMPORTANT: We all have busy lives and hectic schedules, but it is your responsibility to complete the homework assignments and tests by 11:59 pm (Arizona Time) on the due dates shown on the course schedule. NO MAKE-UP OPPORTUNITIES WILL BE ALLOWED ON HOMEWORK ASSIGNMENTS OR TESTS.

Note: You are responsible for memorizing and knowing how to use the formulas and identities associated with this class. Formula sheet may not be provided nor allowed on the final exam.

Note: I may give the final exams online. I sometimes make this decision a few weeks ahead of the exam. Please be prepared for the possibility of an online or onsite exam.

Non-Graded Assessment Items (Will Not Count Toward Your Grade - But Are Critical to Your Success in the Class)

Tracked Tutorial Exercises – Tracked tutorial exercises will be provided in each section to give you additional practice with the skills and concepts presented in the chapter.

Multimedia Textbook Exercise Set - Multimedia Textbook Exercises will be provided in each section to give you additional practice with the skills and concepts presented in the chapter. They are more closely matched to the problems in the exercise sets in the textbook

Academic Honesty The College regards acts of academic dishonesty, including such activities as plagiarism, cheating and/or violations of integrity in information technology, as very serious offenses. Students found completing work for other students may result in one or both of the student's expulsion from the college. Please see the college catalog and student handbook for further details.

Disability Support Services If you have a learning, physical, or other disability that may hinder your learning in this class please let me know and contact Disability Support Services at 480-461-7447 (voice) and 480-969-5587 (tdd). The paperwork prescribing the necessary accommodations can be completed through this office. I cannot make any special accommodations for any student in this class without the proper paper work from Disability Support Services.

Learning Assistance Options (Getting Help) There are numerous options to assist you in learning the material required in this class.

1. **Instructor** - I will establish online office hours using the virtual classroom that you can utilize to get help from me if you need it. Please do not be afraid to ask for help. That's why I'm here. Feel free to stop by my office on the Red Mountain campus as well.
2. **Tutoring Center at MCC** - You can utilize MCC's free tutoring on both the Southern and Dobson or Red Mountain campuses. Online tutoring is available through MCC. I will forward you the times for online tutoring when I receive them.
3. **Textbook Publisher Tutoring** - As a member of this class, you have access to tutors through the publisher of your textbook. You can find information for contacting the publisher's tutors within each chapter in the course shell (under Course Documents). MCC is not responsible for the quality of tutoring the publisher provides.
4. **Other Students** - I will establish discussion groups that you can utilize to request assistance from other students. Discussion groups are asynchronous, which means that they are not in real time. In

addition, I will have a few synchronous (real-time) chat and whiteboard room set up for students to utilize. These rooms are called virtual classrooms. Feel free to use them to help each other.

Student-Instructor Correspondence (E-Mail) It is very likely you will need to communicate with me during the semester. Since I am not always in my office, e-mail is the best way to communicate with me. Please use the following subject line format when sending me an e-mail.

MAT xxx – Your Name – E-Mail Subject

Where *xxx* is 151, 172 or 182 depending on your course, *Your Name* is your name, and *E-Mail Subject* is the subject of the e-mail. E-mail not using this subject line format may be lost due to the college's spam filters. I will respond to all e-mails using the proper subject line within 48 hours (usually within 24 hours).

Course Compass / MyMathLab Technical Assistance The publisher of your textbook has established technical support for you if you experience technical problems while using Course Compass. If you are experiencing technical problems, please call 1-800-677-6337. You must have frequent access to a reliable computer. You are responsible for the course requirements despite any computer difficulties you may have. Computer problems is not an acceptable excuse for not completing course assignments and test. Often, rebooting your computer or temporarily disabling your virus scanner can solve some difficulties. It is your responsibility to have the latest plug-ins installed for the class. Click the Support tab within the course shell for the most up-to-date plug-ins.

Technical Problems on The Publisher's End Because this is a class that extensively utilizes technology, there is bound to be problems. These can be simple network outages or technical problems on the publisher's side of things. If this happens and you can not access the course, don't panic. I will not be able to access the class either. If this should happen when you are to complete an online test, I can simply extend the deadlines. Read your textbook and complete the textbook exercises to keep up your progress. Course Compass technicians will put messages on the Course Compass logon screen when technical issues arise.

Student Rights and Responsibilities All students should be aware of their rights and responsibilities at Mesa Community College. Please reference the college catalog and student handbook for student rights and responsibilities.

Grading I will utilize the following point system to compute your grade. Be sure to pick the table that corresponds to your class.

<i>For MAT 151 - College Algebra</i>	
<i>Assessment Item</i>	<i>Total Points</i>
Fifteen Homework Assignments (40 points each)	600
Seven Chapter Tests (115 points each)	805
Final Exam (595 points)	595
Total Points	2000

<i>For MAT 172 – Finite Mathematics</i>	
<i>Assessment Item</i>	<i>Total Points</i>
Fifteen Homework Assignments (40 points each)	600
Eight Chapter Tests (100 points each)	800
Final Exam (600) points)	600
Total Points	2000

<i>For MAT 182 - Trigonometry</i>	
<i>Assessment Item</i>	<i>Total Points</i>
Fifteen Homework Assignments (40 points each)	600
Six Chapter Tests (135 points each)	810
Final Exam (590 points)	590
Total Points	2000

To compute your grade at any time during the class, simply sum your earned points, divide by the number of possible points at the time you are calculating the grade, and multiply by 100. This will give you a percentage score. You will be able to view your grade throughout the semester by clicking the *Grade Summary* button within the course shell. I will update your grades on a biweekly basis.

The final average will be translated into one of the following letter grades. Traditional rounding will be employed.

<i>Percentage Average</i>	<i>Letter Grade</i>
90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

Important Note on Grades

Curves – A curve of final grades is not guaranteed. I will not know if a curve will be applied to the grades until I compute the grades at the end of the semester. If a curve is applied to the grades, I will not know how much the curve will be until I compute the grades at the end of the semester. Please do not ask about curves as I will not be able to answer your question on this topic until all grades are computed at the end of the semester.

Grades are Earned Not Given – I do not “give” grades. Grades are earned by you based on the quality of your work and your comprehension of the material in the class. I do not negotiate grades. If at the end of the semester, you have a 79%, you have a C. If you have a 69%, you have a D. If I make an error in grade computation, please alert me right away. I will definitely correct these.

Important Dates

<i>Item</i>	<i>Official Date</i>
Classes Begin	August 24
Late Registration Deadline / Drop-Add Deadline	August 28
Last Day for Withdrawal Without Instructor's Signature (For <i>W</i>) *	October 2
Last Day Student Initiated Withdrawal With Instructor Approval (For <i>Y</i> or <i>W</i>) *	November 30
Last Day of Regular Classes	December 13
Final Exam Week	December 14 - 17

* See Withdraw Policy below.

<i>Non-Class Days (College Closed)</i>	<i>Date</i>
Observance of Labor Day	September 7
Observance of Veterans' Day	November 11
Thanksgiving Holiday	November 26 - 29

Withdrawal Policy Students may withdraw with a *W* up to or on October 2nd. I will only withdraw a student if an official withdraw form is completed OR if a student requests a withdraw via e-mail. Please provide a reason for withdrawing from the class if you request a withdraw via e-mail. If a student requests a withdraw after October 2nd, a grade of *W* will be assigned if the student is earning a *D* or higher or a *Y* if the student is failing the class at the time the withdraw request is made. Students who fail to participate in class (determined by two consecutive missed homework assignments or tests) and who have failed to request a withdraw from the class will receive a *Y* for the class. Please note that a *Y* is treated as an *F* for GPA computation purposes. **YOU ARE RESPONSIBLE FOR REQUESTING YOUR WITHDRAW. Students not participating in the class may be referred to MCC's Early Alert System.**

MCC's Early Alert System Mesa Community College is committed to the success of all our students. Numerous campus support services are available throughout your academic journey to assist you in achieving your educational goals. MCC has adopted an Early Alert Referral System (EARS) as part of a student success initiative to aid students in their educational pursuits. Faculty and Staff participate by alerting and referring students to campus services for added support. Students may receive a follow up call from various campus services as a result of being referred to EARS. Students are encouraged to participate, but these services are optional. Early Alert Web Page with Campus Resource Information can be located at: <http://www.mesacc.edu/students/ears>.

Class Protocols

- An asynchronous (non real-time) discussion area will be available for students to use to discuss mathematics (such as the homework activities) and other class issues. You can create discussion groups (threads) as you need them. Please keep the discussion area organized and clean. In addition, synchronous (real-time) virtual classrooms will be available for real-time chat with fellow classmates and your instructor. The virtual classrooms utilize text chat and white board features to make discussing mathematics easy. All inter-student correspondences should be

professional, employing proper language and respect. Harassment of any form will not be tolerated.

- You should keep a notebook to take notes on each section and to complete the recommended exercises.
- Disagreements over grades must be resolved within one week of the grades posting. Please forward any disagreements of grades to me in writing (preferably by e-mail). You can pick up written tests from me in my office or provide a self addressed and stamped envelope and I will mail you the test. Please be sure to put two or three stamps on the envelope because the tests are usually several pages long. Be sure to put your name on anything you submit to me. Also, it is not unusual for the testing software to incorrectly score a test question or two throughout the duration of the class. If you feel the testing software has incorrectly graded a test question after you review the test, please send me an e-mail that states the test and the suspect question. I will review it and make any necessary adjustments.

Web Site Further resources, such as supplemental reviews and solutions, can be found in the course shell. You may also find additional information on my web site at <http://www.mc.maricopa.edu/~seims>

***MCCCD Official Course Competencies and Outline
MAT151 - College Algebra and Functions***

1. Analyze and interpret the behavior of functions, including end behavior, increasing and decreasing, extrema, asymptotic behavior, and symmetry. (I, II, III)
2. Solve polynomial, rational, exponential, and logarithmic equations analytically and graphically. (I, II, III)
3. Find real and complex zeros of polynomial functions analytically and graphically. (II)
4. Graph polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions. (I, II, III)
5. Determine domain and range of polynomial, rational, exponential, logarithmic, power, absolute value, and piecewise-defined functions. (I, II, III)
6. Use transformations to graph functions. (I, II, III)
7. Perform operations, including compositions, on functions and state the domain of the resulting function. (I, II, III)
8. Determine whether a relation is a function when represented numerically, analytically, or graphically. (I, II, III)
9. Determine whether a function is one-to-one when represented numerically, analytically, or graphically. (I, II, III)
10. Determine the inverse of a relation when represented numerically, analytically, or graphically. (I, II, III)
11. Classify functions by name when represented numerically, analytically, or graphically. (I, II, III)
12. Determine regression models from data using appropriate technology and interpret results. (I, II, III)
13. Read and interpret quantitative information when presented numerically, analytically, or graphically. (I, II, III, IV)
14. Justify and interpret solutions to application problems. (I, II, III, IV, V)

15. Compare alternative solution strategies. (I, II, III, IV)
16. Calculate and interpret average rate of change. (I, II, III)
17. Model and solve real world problems. (I, II, III, IV, V)
18. Solve systems of three linear equations in three variables. (IV)
19. Solve systems of linear inequalities. (IV)
20. Communicate process and results in written and verbal formats. (I, II, III, IV, V)

I. Behavior and Nature of Functions

- A. Graphic, numeric, and algebraic representations
- B. Characteristics of basic functions
- C. Properties, operations, transformations, and inverses of functions

II. Polynomial and Rational Functions

- A. Polynomial and rational equations
- B. Graphs of polynomial and rational functions
- C. Applications

III. Exponential and Logarithmic Functions

- A. Exponential and logarithmic equations
- B. Graphs of exponential and logarithmic equations
- C. Applications

IV. Systems of Equations and Inequalities

- A. Linear systems
- B. Applications

V. Departments must include one or more of the following topics in their courses

- A. Matrices
- B. Combinatorics
- C. Sequences and series
- D. Conics

MCCCD Official Course Competencies and Outline
MAT 172 - Finite Mathematics

1. Solve linear systems with two and three equations using various matrix methods. (I)
2. Use technology to solve application problems. (I, II, III, V) 3 Solve systems of linear inequalities using linear programming. (II)
3. Solve problems related to financial applications. (III)
4. Solve counting problems using various counting techniques. (IV)
5. Solve probability applications. (V, VI)
6. Use descriptive statistics to analyze data sets. (VI)

- I. Systems of linear equations and matrices
 - A. Matrices applied to a system of linear equations
 - B. Inverse matrices and their applications to solve a system of linear equations
 - C. Solving systems of linear equations using the Gauss-Jordan and elimination methods
- II. Linear programming
 - A. Graphing systems of linear inequalities
 - B. Solving and interpreting linear programming applications in two dimensions using graphical techniques
 - C. Using the Simplex method to solve and analyze maximum and minimum linear programming applications
- III. The Mathematics of Finance
 - A. Simple interest
 - B. Compound interest
 - C. Annuities
 - D. Amortization
- IV. Combinatorics
 - A. Sets and Venn diagrams
 - B. Fundamental principle of counting
 - C. Permutations and combinations
- V. Probability
 - A. Fundamental concepts
 - B. Conditional probability and independent events
 - C. Applications of Bayes' Theorem
 - D. Binomial applications
- VI. Statistics
 - A. Measures of central tendency
 - B. Standard deviation
 - C. Normal distributions

***MCCCD Official Course Competencies and Outline
MAT182 - Plane Trigonometry***

1. Identify a trigonometric function. (I)
2. Use the definitions and properties of trigonometric functions to solve problems. (I)
3. Find the length of an arc. (II)
4. Determine the area of a sector. (II)
5. Find linear and angular velocity. (II)
6. Determine the graph and period of a trigonometric function. (III)
7. Evaluate inverse trigonometric functions. (IV)
8. Verify trigonometric identities. (V)
9. Solve trigonometric equations. (VI)
10. Use trigonometric formulas to solve application problems. (VII)

11. Find n th roots of complex numbers. (VIII)

I. Definition and properties of trigonometric functions

- A. Trigonometric functions of acute angles
- B. Solving right triangles

II. Circular functions

- A. Radian measure
- B. Length of an arc
- C. Area of a sector
- D. Linear and angular velocity

III. Graphs of trigonometric functions

- A. Phase shift
- B. Addition of ordinates

IV. Inverse trigonometric functions

V. Trigonometric identities

- A. Fundamental identities
- B. Verifying trigonometric identities
- C. Sum and difference identities for cosine
- D. Double-angle identities
- E. Half-angle identities

VI. Conditional equations

VII. Trigonometric formulas

- A. Law of sines
- B. Law of cosines

VIII. Complex numbers

- A. Trigonometric form of complex numbers
- B. De Moivre's theorem
- C. Roots of complex numbers