MAT 110

College Algebra

Course Description
This course includes the following topics: polynomial, rational, logarithmic, and exponential functions; inequalities; systems of equations and inequalities; matrices; determinants; simple linear programming; solutions of higher degree polynomials.

Prerequisites: MAT 102, RDG 100.

3.0 Cr (3 lect/pres, 0 lab, 0 other)

Course Focus
OBJECTIVES/LEARNING OUTCOMES:
Upon satisfactory completion of this course, students should be able to perform the following tasks:
1. Solve and graph first-degree equations and inequalities.
2. Identify and graph relations and functions, including conic sections
3. Operate with and graph polynomial and rational functions
4. Use logarithms and exponential functions
5. Solve systems of simultaneous equations & inequalities
6. Use matrices and determinants to solve systems of equations
7. Apply the binomial theorem
9. Apply simple probability

Text and References

MAT 110 Core Curriculum Competencies
All courses approved for the general education core curriculum help students develop communication skills and/or critical thinking.
This course develops critical thinking skills through instruction that emphasizes the understanding of mathematical concepts and the ability to apply these concepts to solve a problem. This will be demonstrated by assessments at the end of each unit and on the common final exam. The student will demonstrate the following critical thinking objectives:

- Solve polynomial, rational, exponential, logarithmic and radical equations using mathematical principles in a logical process.
- Solve systems of equations using various mathematical methods including elimination, substitution, graphing, and matrices in a logical process.
- Apply mathematical principles in a logical process to solve real world problems involving polynomial, rational, exponential, logarithmic, and radical functions as well as systems of equations.
- Solve rational and polynomial inequalities and systems of inequalities using algebraic and graphical methods in a logical process.

This course develops communication skills through instruction that emphasizes the presentation of mathematical ideas in appropriate, clear, and precise mathematical language. The student will demonstrate the following communication objectives:

- Graph polynomial, rational, exponential, logarithmic, and radical functions, interpret the graphs, and explain their properties using appropriate, clear, and precise mathematical symbols and terminology.
- Interpret and explain solutions of polynomial, rational, exponential, logarithmic, and radical equations and real world problems as well as systems of equations using appropriate, clear, and precise mathematical symbols and terminology.

Course Goals
The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives. (*designates a CRUCIAL goal)

1. Add polynomials
2. Compute slope of a line
3. Generate equations of lines
4. Graph linear functions
5. Describe characteristics of circles
6. Identify domain
7. Identify range
8. Determine interval decreasing
9. Determine interval increasing
10. Derive relative maximum values
11. Derive relative minimum values
12. Understand transformations
13. Understand symmetry
14. Analyzing piecewise functions
15. Indicate zeros of linear functions
16. Modeling linear functions
17. Graph quadratic functions
18. Operations with complex numbers
19. Analyzing quadratic functions
20. Applying the quadratic formula
21. Applying completing the square
22. Perform operations with inequalities
23. Solving linear inequalities
24. Describe properties of functions
25. Discuss polynomial functions
26. Determining zeros of polynomial functions
27. Determine solutions to higher degree polynomials
28. Apply the fundamental THM of algebra
29. Create polynomial functions
30. Graph higher degree functions  
31. Detect the zeros of polynomial functions  
32. Implement Descartes rule  
33. Discuss rational expressions  
34. Compute asymptotes  
35. Calculating inverses of functions  
36. Solving exponential equations  
37. Transform logarithmic to exponential form  
38. Transform exponential to logarithmic form  
39. Solve exponential equations  
40. Solve logarithmic equations  
41. Solving logarithmic equations  
42. Calculate determinants  
43. Sketch systems of equations  
44. Solve systems of equations  
45. Use elimination in systems of equations  
46. Use substitution in systems of equations  
47. Utilize matrices to solve systems of equations  
48. Discuss properties of conic sections  
49. Transform equations to standard form  

Student Contributions  
MATERIALS NEEDED: Graphing Calculator (TI-83/84 preferred), Grid paper.  

Course Evaluation  
COURSE STANDARDS, EVALUATION, METHODS/CRITERIA, GRADING POLICY:  

Your final grade will be obtained from the average of your homework/daily grades, unit tests, and the final examination.  

Evaluation for this course will come from 3 components: Homework, Unit Tests, and the Final Exam.  

Students must earn a minimum score of 70% to pass this course and continue with his/her math sequence.  

Current grade for this course can be found on the Course Compass website under your login.  

The grading scale is as follows:  
90 - 100 = A  
80 - 89 = B  
70 - 79 = C  
60 - 69 = D  
Below 60 = F  

Course Schedule  
The class meets for 3 lecture/presentation hours per week.  

Developed/Revised: January 29, 2010
ADA STATEMENT
The Technical College of the Lowcountry provides access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation, contact the counselor for students with disabilities at (843) 525-8228 during the first ten business days of the academic term.

ACADEMIC MISCONDUCT
There is no tolerance at TCL for academic dishonesty and misconduct. The College expects all students to conduct themselves with dignity and to maintain high standards of responsible citizenship.

It is the student’s responsibility to address any questions regarding what might constitute academic misconduct to the course instructor for further clarification.

The College adheres to the Student Code for the South Carolina Technical College System. Copies of the Student Code and Grievance Procedure are provided in the TCL Student Handbook, the Division Office, and the Learning Resources Center.

ATTENDANCE
The College’s statement of policy indicates that students must attend ninety percent of total class hours or they will be in violation of the attendance policy.

- Students not physically attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING.
- Students taking an online/internet class must sign in and communicate with the instructor within the first ten calendar days from the start of the semester to indicate attendance in the class. Students not attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING.
- Reinstatement requires the signature of the division dean.

In the event it becomes necessary for a student to withdraw from the course OR if a student stops attending class, it is the student’s responsibility to initiate and complete the necessary paperwork. Withdrawing from class may have consequences associated with financial aid and time to completion.

When a student exceeds the allowed absences, the student is in violation of the attendance policy. The instructor MUST withdrawal the student with a grade of “W”, “WP”, or “WF” depending on the date the student exceeded the allowed absences and the student’s progress up to the last date of attendance or

- Under extenuating circumstances and at the discretion of the faculty member teaching the class, allow the student to continue in the class and make-up the work. This exception must be documented at the time the allowed absences are exceeded.
- Absences are counted from the first day of class. There are no "excused" absences. All absences are counted, regardless of the reason for the absence.
  - A student must take the final exam or be excused from the final exam in order to earn a non-withdrawal grade.
  - A copy of TCL’s STATEMENT OF POLICY NUMBER: 3-1-307 CLASS ATTENDANCE (WITHDRAWAL) is on file in the Division Office and in the Learning Resources Center.
HAZARDOUS WEATHER
In case weather conditions are so severe that operation of the College may clearly pose a hardship on students and staff traveling to the College, notification of closing will be made through the following radio and television stations: WYKZ 98.7, WGCO 98.3, WGZO 103.1, WFXH 106.1, WWVV 106.9, WLOW 107.9, WGZR 104.9, WFXH 1130 AM, WLVH 101.1, WSOK 1230 AM, WAEV 97.3, WTOC TV, WTGS TV, WJWJ TV, and WSAV TV. Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. www.tcl.edu/textalert.asp

EXTRA:

Emergency Text Message Alert
Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. Participants receive immediate notification of emergency events and weather cancelations via text messaging on their cell phones. Participants can also opt in to receive non-emergency news and announcements. Go to www.tcl.edu. On the homepage, click on “emergency TextAlert at TCL” and fill out the form or go to www.tcl.edu/textalert.asp

GRADING METHODOLOGY
The final grade must be 70 or more (a grade “C” or better) in order to pass the course and progress to the next course. Students absent from an examination or presentation will receive a “0” grade for the examination unless other arrangements are made with the individual instructor prior to the examination or presentation day or on the examination or presentation day before the test/presentation is scheduled to be given.

The student is responsible for notifying the instructor for the reason of the absence. It is also the responsibility of the student to contact the appropriate instructor to arrange to make up the examination. Arrangements may be completed by telephone.

If the instructor is not available, a message should be left on the instructor’s voice mail AND with another member of the faculty or administrative assistant. The make-up exam will be scheduled and the instructor will decide the method of examination. Messages sent by other students are unacceptable.