COURSE NUMBER & TITLE: MATH 0983: Intermediate Algebra  
CREDITS: 3 (Lec 3 / Lab 0)  
PREREQUISITES: Completion of MATH 0961 Algebra for Liberal Arts with a “C” or better, or placement exam, or equivalent.  

CO-REQUISITE: MATH 0982: Algebra Concepts  

CATALOG DESCRIPTION:  
Intermediate Algebra is designed to study operations on real numbers, manipulations of basic algebraic expressions, operations with linear and absolute value expressions, solving equations and inequalities, graphs, functions, solving systems of equations and inequalities, operations on polynomials and polynomial functions including factoring, and applications.  

OUTLINE OF MAJOR CONTENT AREAS:  
1. Solving linear equations and inequalities  
   A. Solving equations  
   B. Formulas and applications  
   C. Applications and problem solving  
   D. Sets, interval notation, and inequalities  
   E. Intersections, unions, and compound inequalities  
   F. Absolute-value equations and inequalities  
2. Graphs, functions, and applications  
   A. Graphs of equations  
   B. Functions and graphs  
   C. Finding domain and range  
   D. Linear functions: graphs and slope  
   E. Finding equations of lines  
      1. The slope-intercept equation  
      2. The point-slope equation  
   F. Mathematical modeling with linear functions  
3. Systems of equations  
   A. Graphing systems of equations in two variables  
   B. Solving by substitution or elimination  
   C. Solving applied problems: systems of two equations  
   D. Systems of linear inequalities in two variables  
4. Polynomials and polynomial functions  
   A. Introduction to polynomials and polynomial functions  
   B. Multiplication of polynomials
C. Factoring by removing a common factor
D. Factoring by grouping
E. Factoring trinomials
   1. $x^2 + bx + c$
   2. $ax^2 + bx + c$ where $a$ is not 1
F. Special factoring
G. Factoring differences of $n^{th}$ powers
H. Applications of polynomial equations and functions

COURSE GOALS/OBJECTIVES/OUTCOMES:
1. Students will manipulate and simplify algebraic expressions using order of operations and equivalent algebraic expressions.
2. Students will solve linear equations and applied problems involving linear equations.
3. Students will solve compound inequalities and equations involving intersections, unions, and absolute values and apply these solution techniques to applied problems.
4. Students will graph equations involving two variables.
5. Students will determine whether a correspondence is a function and determine the domain, range, intercepts, and equations of functions.
6. Students will graph linear functions and determine the equations and slopes for linear functions.
7. Students will solve systems of equations using graphing, substitution, and elimination.
8. Students will solve applied problems involving systems of equations.
9. Students will perform operations using polynomial functions.
10. Students will evaluate polynomials for specified inputs.
11. Students will factor polynomials including, but not limited to, trinomials of the form $x^2+bx+c$ and $ax^2+bx+c$, differences of squares, sums and differences of cubes, trinomial squares, and differences of $n^{th}$ powers.
12. Students will solve applied problems involving polynomial functions.

MNTC GOALS AND COMPETENCIES MET:
N/A

HCC COMPETENCIES MET:
Communicating Clearly & Effectively
Thinking Creatively & Critically

STUDENT CONTRIBUTIONS:
The student will attend class regularly, participate in class discussion, complete daily assignments, in class exercises, exams, and a comprehensive final examination. The student will spend a minimum of two hours completing assignments for every hour in class. These must be accomplished in such a way that they meet minimum standards set by the instructor.
STUDENT ASSESSMENT SHALL TAKE PLACE USING INSTRUMENTS SELECTED/DEVELOPED BY THE COURSE INSTRUCTOR.

SPECIAL INFORMATION:
The student may be required to provide a calculator for this course. If a specific calculator model is required, this model will be specified by the instructor on the course syllabus.
Students shall take an algebra readiness exam at the start of the course. The purpose of this exam is to assess student knowledge of algebra concepts. Students who score sufficiently high on the exam may have the opportunity to drop the MATH 09XX: Algebra Concepts co-requisite course. The instructor will make the final determination on this matter.

Curriculum Approval Date: March 5, 2019

AASC APPROVAL DATE: March 20, 2019
REVIEW DATE: March 2024