College Algebra

Course Description:

College Algebra is at least a 3 credit hour course that consists of the algebraic, graphic, numeric, and modeling approach to the study of polynomials, equations, inequalities, and functions, with or without technology, and with appropriate symbolic manipulation skills. It includes the use of appropriate mathematical language, including symbolism, to define, evaluate, and analyze the characteristics of functions. At least 70% of the course time must be spent on ***all*** essential topics.

Course objectives will stem from these essential topics:

- Number systems including complex numbers
- Definition of function
- Function vs Relation
- Function notation and evaluation
- Interval notation and set builder notation
- Characteristics of functions and their behaviors such as increasing, decreasing, extrema, zeros, domain, and range
- Table representations of functions and relations
- Graphing functions with and without technology
- Function operations including composition
- Transformations
- Inverses
- Solving Equations and inequalities
- Applications of functions and modeling
- Coordinate geometry including distance and circles
- Systems of Linear Equations

Types of Functions to be investigated:

Linear; Absolute Value; Quadratic; Polynomial; Exponential; Rational; Logarithmic; Piecewise defined; Radical

Additional topics may include:

- Conic Sections
- Linear Programming
- Matrices
- Non-linear Systems of Equations
- Sequences and Series
- Theory of Polynomials

Template for Course Inventory

Please fill out the following table and submit attachment(s). Approved courses must be resubmitted every 5 years.

Please attach the following materials:

- Current working syllabus and lab syllabus that contains instructional goals and/or objectives
- Comprehensive final; in the absence of a comprehensive final no more than 5 sample assessments

Course #			
Course Title			
Beginning Term (when is/was it first offered?)	If more than five years, check box ☐		
	If less than five years, enter date:		
Credit Hours (including the entire course, lecture/lab)	Course:	Lab:	
Co-/Pre-requisite (test scores for placement)		Test	Score
	Co-Requisite		
	Pre-Requisite		
Successor Course:			
Catalog Description			
All Textbook(s)/Lab Manual	ISBN: Title: Publisher: Author: Edition: Copyright Year:	ISBN: Title: Publisher: Author: Edition: Copyright Year:	

Indicate the percent time spent on each learning objective (should add up to 100%). To indicate where evidence of each learning objective is located in this submission, please check all boxes that apply.

S – Syllabus T – Topics list C – Catalog Description A – Assessment O – other attachment

Indicate the typical percentage of time spent on each learning outcome/topic	**Learning Objective**	**% Time**	**S**	**T**	**C**	**A**	**O**
	1. Number systems including complex numbers						
	2. Definition of function						
	3. Function vs Relation						
	4. Function notation and evaluation						
	5. Interval notation and set builder notation						
	6. Characteristics of functions and their behaviors such as increasing, decreasing, extrema, zeros, domain, and range						
	7. Table representations of functions and relations						
	8. Graphing functions with and without technology						
	9. Function operations including composition						
	10. Transformations						
	11. Inverses						
	12. Solving Equations and inequalities						
	13. Applications of functions and modeling						
	14. Coordinate geometry including distance and circles						
	15. Systems of Linear Equations						
Non-essential topics (may not be covered at all)	16. Conic Sections						
	17. Linear Programming						
	18. Matrices						
	19. Sequences and Series						
	20. Non-linear Systems of Equations						
	21. Theory of Polynomials (such as: Descartes Rule of Signs; Factor Theorem; Remainder Theorem; Fundamental Theorem of Algebra …)						
	22. Other:						

Functions to be Studied	Function	Check if covered
	1. Linear	
	2. Absolute Value	
	3. Quadratic	
	4. Polynomial	
	5. Exponential	
	6. Rational	
	7. Logarithmic	
	8. Piecewise defined	
	9. Radical	
Additional Comments:		

Name of individual submitting:_____Date:_____

Email address:_____

Please contact WVHEPC, Academic Affairs with questions