

Precalculus

Course Description:

Precalculus is at least a 3-credit course that consists of the algebraic, graphic, numeric, and modeling approach to the study of functions, with or without technology, and with appropriate symbolic manipulation skills. It includes the use of appropriate mathematical language, with symbolism, to define, evaluate, and analyze the characteristics of functions **At least 70% of the course time must be spent on the essential topics.** All essential topics must be addressed. The course must be at least a 3-credit course. If the course is more than 3-credit, then the essential topics comprise 70% of the three-hour portion of the class. The remaining 1-2 credit hours may be used for optional topics as part of the co-requisite portion of the course.

Essential topics:

- Definition of a function
- Properties and characteristics of functions including domain and range
- Function notation and evaluation including domain and range
- Inverse functions including domain and range
- Recognize and perform operations and transformations on functions symbolically, graphically, and in tabular form
- Synthetic division, Remainder Theorem, and Factor Theorem
- Interpret and construct functions as models
- Complex numbers
- Basic Trigonometric functions and their inverses related to both the right triangle and the unit circle
- Degree and radian measurement of an angle
- Solve right and oblique triangles using the Law of Sines and Law of Cosines
- Solve application problems involving right and oblique triangles
- Sequences and series and summation notation
- Verify and apply trigonometric identities including sum and difference; and double and half-angle
- Solve a variety of trigonometric and inverse trigonometric equations

Functions to be studied:

- Linear; Quadratic; Absolute Value; Radical; Polynomial; Rational; Exponential; Logarithmic; Trigonometric; Inverse Trigonometric; Piecewise

Additional topics may include:

- Analytic geometry of conic sections
- Binomial Expansion Theorem
- Fundamental Theorem of Algebra
- Matrices
- Polar coordinates, equations, and graphs
- Vectors

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 <input type="checkbox"/>		
	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:	ISBN:	
	Title:	Title:	
	Publisher:	Publisher:	
	Author:	Author:	
	Edition:	Edition:	
	Copyright Year:	Copyright Year:	

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

S – Syllabus

T – Topics list

C – Catalog Description

A – Assessment

O – other attachment

Essential Topics:	% Time	S	T	C	A	O
1. Definition of a function						
2. Properties and characteristics of functions including domain and range						
3. Function notation and evaluation including domain and range						
4. Inverse functions including domain and range						
5. Recognize and perform operations and transformations on functions symbolically, graphically, and in tabular form						
6. Synthetic division, Remainder Theorem, and Factor Theorem						
7. Interpret and construct functions as models						
8. Complex numbers						
9. Basic Trigonometric functions and their inverses related to both the right triangle and the unit circle						
10. Degree and radian measurement of an angle						
11. Solve right and oblique triangles using the Law of Sines and Law of Cosines						
12. Solve application problems involving right and oblique triangles						
13. Sequences and series and summation notation						
14. Verify and apply trigonometric identities including sum and difference; and double and half-angle						
15. Solve a variety of trigonometric and inverse trigonometric equations						
Percentages Sub-Total:						
Non-Essential Topics (may not be addressed at all):	% Time	S	T	C	A	O
1. Analytic geometry of conic sections						
2. Binomial Expansion Theorem						
3. Fundamental Theorem of Algebra						
4. Matrices						
5. Polar coordinates, equations, and graphs						
6. Vectors						
7. Other:						
Percentages Sub-Total:						
Percentage Grand Total:						

Functions Required: must be addressed	Check if addressed	S	T	C	A	O
1. Linear						
2. Quadratic						
3. Absolute Value						
4. Radical						
5. Polynomial						
6. Rational						
7. Exponential						
8. Trigonometric						
9. Piecewise						
10. Inverse Trigonometric						

Additional Comments:

Check if addressed:

<input type="checkbox"/>	Current working syllabus and lab syllabus that contains instructional goals and/or objectives
<input type="checkbox"/>	Comprehensive final; in the absence of a comprehensive final no more than 5 sample assessments
<input type="checkbox"/>	Every essential topic has been addressed
<input type="checkbox"/>	At least 70% of the course time must be spent on all the essential topics
<input type="checkbox"/>	Percentages of topics must total 100%
<input type="checkbox"/>	Course is at least 3-credit

Name of individual submitting: _____ Date: _____

Email address: _____ Phone: _____

Please contact Jodi Oliveto, Senior Policy and Program Officer, jodi.oliveto@wvhepc.edu with questions