



COURSE OUTLINE : ABSE 28
N Non-Credit
COURSE ID 010414
November 2018

COURSE DISCIPLINE : ABSE
COURSE NUMBER : 28
COURSE TITLE (FULL) : Algebra 2A
COURSE TITLE (SHORT) : Algebra 2A

CATALOG DESCRIPTION

ABSE 28 focuses on linear, quadratic, and exponential functions including polynomial, rational, and radical functions. Students work closely with the expressions that define the functions and expand and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. Students explore the effects of transformations on graphs of diverse functions, including functions arising in applications. ABSE 28 is aligned with the California Common Core State Standards and high school grade-specific standards to define college and career readiness expectations. It meets the requirements for a high school diploma. Laboratory 100 hours. Note: This is a self-paced course in an open-entry, open-exit lab environment. Successful completion of this course results in 5 high school credits.

Total Lecture Units:0.00

Total Laboratory Units: 0.00

Total Course Units: 0.00

Total Lecture Hours:0.00

Total Laboratory Hours: 100.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 100.00

Recommended Preparation: ESL 040, ABSE 24 and ABSE 25, or equivalent.

ENTRY STANDARDS



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	Subject	Number	Title	Description	Include
1				Converse at a functional level adequate for everyday use on the campus and in the community;	Yes
2				demonstrate understanding of the majority of face-to-face speech, recorded, and live dialogues in standard dialect at a normal rate, although some repetition may be required;	Yes
3				approximate standard American pronunciation well enough to be understood by typical fluent speakers of English;	Yes
4				solve absolute value equations and inequalities and graph their solutions;	Yes
5				choose and interpret units consistently in formulas;	Yes
6				choose and interpret the scale and the origin in graphs;	Yes
7				create linear and quadratic equations to solve problems;	Yes
8				create equations in two or more variables to represent relationships between quantities;	Yes
9				construct linear and exponential functions including arithmetic and geometric sequences from various sources;	Yes
10				interpret and compare linear, quadratic, and exponential growth; display and analyze data statistically;	Yes
11				solve simple problems involving theoretical and experimental probability;	Yes
12				make a variety of formal geometric constructions using a variety of tools;	Yes
13				understand congruence in terms of rigid motions;	Yes
14				prove theorems about lines and angles, triangles, and parallelogram;	Yes
15				prove theorems involving similarity;	Yes
16				define trigonometric ratios and solve problems involving right triangles;	Yes
17				explain and use formulas for determining the volume and surface area of solids;	Yes
18				use coordinates to prove simple geometric theorems algebraically;	Yes
19				apply theorems about circles.	Yes

EXIT STANDARDS



- 1 Graph solution sets of compound inequalities;
- 2 write and graph equations for linear equations and inequalities in two variable and absolute value functions;
- 3 solve systems using matrices;
- 4 solve linear systems of two or three variables by graphing;
- 5 write and use linear systems to solve real life problems;
- 6 factor quadratic polynomials;
- 7 use complex number systems;
- 8 solve and graph quadratic equations, inequalities and functions;
- 9 perform operations on polynomials;
- 10 evaluate, graph and find the zeros of polynomial functions;
- 11 evaluate nth roots of real numbers using both radicals and exponential notation;
- 12 graph and use exponential and logarithmic functions.

STUDENT LEARNING OUTCOMES

- 1 create equations that describe numbers or relationships
- 2 construct and compare linear and exponential models of applied problems
- 3 construct graphs of equations and inequalities

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Expressions, Equations, and Inequalities <ul style="list-style-type: none"> • Patterns and expressions • Properties of real numbers • Algebraic expressions • Solving equations • Solving inequalities • Absolute value equations and inequalities 	0	12	12
2	Functions, Equations, and Graphs <ul style="list-style-type: none"> • Relations and functions • Direct variation • Linear functions and slope intercept form • Using linear models • Families of functions • Absolute value functions and graphs • Two-variable inequalities 	0	14	14



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3	<p>Linear Systems</p> <ul style="list-style-type: none"> • Solving systems using tables and graphs • Solving systems algebraically • Systems of inequalities • Linear programming • Systems with three variables • Solving systems using matrices 	0	12	12
4	<p>Quadratic Functions and Equations</p> <ul style="list-style-type: none"> • Quadratic functions and transformations • Standard form of a quadratic function • Modeling with quadratic functions • Factoring quadratic expressions • Quadratic equations • Completing the square • The quadratic formula • Complex numbers • Quadratic systems 	0	18	18
5	<p>Polynomials and Polynomial Functions</p> <ul style="list-style-type: none"> • Polynomial functions • Polynomials, linear factors, and zeros • Solving polynomial equations • Dividing polynomials • Theorems about roots and polynomial equations • The Fundamental Theorem of Algebra • The Binomial Theorem • Polynomial models in the real world • Transforming polynomial functions 	0	18	18
6	<p>Radical Functions and Rational Exponents</p> <ul style="list-style-type: none"> • Roots and radical expressions • Multiplying and dividing radical expressions • Binomial radical expressions • Rational exponents • Solving square root and other radical equations • Function operations Inverse relations and functions • Graphing radical functions 	0	14	14



7	Exponential and Logarithmic Functions	0	12	12
	<ul style="list-style-type: none"> • Exploring exponential models • Properties of exponential functions • Logarithmic functions as inverses • Properties of logarithms • Exponential and logarithmic equations • Natural logarithms 			
				100

OUT OF CLASS ASSIGNMENTS

- 1 Not applicable

METHODS OF EVALUATION

- 1 individualized contract
- 2 assessments at the end of each chapter
- 3 unit exams

METHODS OF INSTRUCTION

- Lecture
- Laboratory
- Studio
- Discussion
- Multimedia
- Tutorial
- Independent Study
- Collaboratory Learning
- Demonstration
- Field Activities (Trips)
- Guest Speakers
- Presentations

TEXTBOOKS



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Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Algebra 2 Common Core	Required	Pearson	1	Print	R. Charles	10: 013328116 7	2015