



COURSE OUTLINE : ABSE 29
N Non-Credit
COURSE ID 010415
November 2018

COURSE DISCIPLINE : ABSE
COURSE NUMBER : 29
COURSE TITLE (FULL) : Algebra 2B
COURSE TITLE (SHORT) : Algebra 2B

CATALOG DESCRIPTION

ABSE 29 focuses on rational functions, sequences and series, and quadratic relations and conic sections. Students continue solving complex systems of equations including matrices. They use the coordinate plane to extend trigonometry to model periodic phenomena and expand basic functions to the entire unit circle. Students identify different ways of collecting and analyzing data and the role of randomness and careful design in the conclusions that can be drawn. Laboratory 100 hours.
Note: This is a self-paced course in an open-entry, open-exit lab environment. Successful completion of this course is worth 5 credits (1/2 unit) towards a high school diploma.

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 40, ABSE 28, or equivalent.

ENTRY STANDARDS



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

EXIT STANDARDS

- 1 Build a function that models a relationship between two quantities;
- 2 construct and compare linear and exponential models and solve problems;
- 3 rewrite rational expressions;
- 4 translate between the geometric description and the equation for a conic section;
- 5 represent and model with vector quantities;
- 6 perform operations on matrices and use matrices in applications;
- 7 evaluate random processes underlying statistical experiments;
- 8 use the rules of probability to compute probabilities of compound events in a uniform probability model;
- 9 prove and apply trigonometric identities;
- 10 define trigonometric ratios and apply trigonometry to general triangles;
- 11 illustrate the periodicity of the trigonometric functions using the unit circle.

STUDENT LEARNING OUTCOMES



- 1 analyze functions using different representations
- 2 summarize, represent and interpret data
- 3 model periodic phenomena with trigonometric functions

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Rational Functions <ul style="list-style-type: none"> • Inverse variation • The reciprocal function family • Rational functions and their graphs • Rational expressions • Solving rational equations 	0	11	11
2	Sequences and Series <ul style="list-style-type: none"> • Mathematical patters • Arithmetic sequences and series • Geographic sequences and series 	0	7	7
3	Quadratic Relations and Conic Sections <ul style="list-style-type: none"> • Exploring conic sections • Parabolas • Circles • Ellipses • Hyperbolas • Translating conic sections 	0	13	13
4	Probability and Statistics <ul style="list-style-type: none"> • Permutations and combinations • Probability • Probability of multiple events • Conditional probability • Probability models • Analyzing data • Standard deviation • Samples and surveys • Binomial Distributions • Normal distributions 	0	22	22



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5	<p>Matrices</p> <ul style="list-style-type: none"> • Adding and subtracting matrices • Matrix multiplication • Determinants and Inverses • Inverse matrices and systems • Geometric transformations • Vectors 	0	13	13
6	<p>Periodic functions and trigonometry</p> <ul style="list-style-type: none"> • Periodic functions • Angles and unit circle • Radian measure • Sine function • Cosine function • Tangent function • Translating sine and cosine functions • Reciprocal trigonometric functions 	0	18	18
7	<p>Trigonometric Identities and Equations</p> <ul style="list-style-type: none"> • Trigonometric identities • Solving trigonometric equations using inverses • Right triangles and trigonometric ratios • Area and the law of sines • The law of cosines • Angle identities • Double-angle and half-angle identities 	0	16	16
				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



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

TEXTBOOKS

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