



COURSE OUTLINE : ABSE 19
N Non-Credit
COURSE ID 010413
November 2018

COURSE DISCIPLINE : ABSE
COURSE NUMBER : 19
COURSE TITLE (FULL) : Integrated Mathematics 1B
COURSE TITLE (SHORT) : Integrated Mathematics 1B

CATALOG DESCRIPTION

ABSE 19 is an introduction to geometric reasoning and modeling. Topics of study include exponential functions, equations and models; transformations and symmetry; congruence; lines and angles; triangles, quadrilaterals and coordinate proofs. This course is designed to meet the needs of students who wish to begin their study of second semester Intermediate Mathematics 1 and to earn high school credit in mathematics. 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 (.5 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 or equivalent, ABSE 18 or equivalent.

ENTRY STANDARDS



	Subject	Number	Title	Description	Include
1				Interpret parts of an expression in terms of its context;	Yes
2				explain the steps to solve a one-variable equation and construct a viable argument to justify a solution method;	Yes
3				solve equations and inequalities in one-variable including using coefficients represented by letters;	Yes
4				solve absolute value equations and inequalities and graph their solutions;	Yes
5				choose and interpret the scale and the origin in graphs;	Yes
6				represent constraints by equations or inequalities and by systems of equations or inequalities;	Yes
7				solve for a specific variable in a formula;	Yes
8				write functions that describe a relationship between two quantities;	Yes
9				identify the effects on a graph by changing part of a function;	Yes
10				create equations in two or more variables to represent relationships between quantities;	Yes
11				display and analyze data statistically.	Yes

EXIT STANDARDS

- 1 Compare linear and exponential growth;
- 2 interpret the parameters in a linear or exponential function in terms of a context;
- 3 write arithmetic and geometric sequences both recursively and with an explicit formula;
- 4 make a variety of formal geometric constructions using a variety of tools;
- 5 experiment with transformations in the plane;
- 6 understand congruence in terms of rigid motions;
- 7 explain triangle congruence in terms of rigid motion;
- 8 prove theorems about lines and angles, triangles, and parallelograms.

STUDENT LEARNING OUTCOMES

- 1 model geometric sequences both recursively and with an explicit formula
- 2 use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion of a given figure
- 3 use coordinates to compute perimeters of polygons and areas of triangles and rectangles

COURSE CONTENT WITH INSTRUCTIONAL HOURS



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	Description	Lecture	Lab	Total Hours
1	Geometric Sequences and Exponential Functions <ul style="list-style-type: none"> • Understanding and constructing geometric sequences • Constructing exponential functions • Graphing exponential functions • Transforming exponential functions 	0	9	9
2	Exponential Equations and Models <ul style="list-style-type: none"> • Using graphs and properties to solve equations with exponents • Modeling exponential growth and decay • Using exponential regression models • Comparing linear and exponential models 	0	8	8
3	Geometric Tools <ul style="list-style-type: none"> • Segment length and midpoint • Angle measures and angle bisectors • Representing and describing transformations • Reasoning and proof 	0	8	8
4	Transformations and Symmetry <ul style="list-style-type: none"> • Translations • Reflections • Rotations • Symmetry 	0	8	8
5	Congruent Figures <ul style="list-style-type: none"> • Sequences of transformations • Proving figures and congruent using rigid motions • Congruence of corresponding parts of congruent figures 	0	6	6
6	Lines and angles <ul style="list-style-type: none"> • Angles formed by intersecting lines • Transversals and parallel lines • Proving lines are parallel • Perpendicular lines • Equations of parallel and perpendicular lines 	0	10	10



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7	<p>Triangle Congruence Criteria</p> <ul style="list-style-type: none"> • Understanding and constructing congruent triangles • Angle-side-angle triangle congruence • Side-angle-side triangle congruence • Side-side-side triangle congruence 	0	9	9
8	<p>Applications of Triangle Congruence</p> <ul style="list-style-type: none"> • Justifying constructions • Angle-angle-side triangle congruence • Hypotenuse-leg triangle congruence 	0	7	7
9	<p>Properties of Triangles</p> <ul style="list-style-type: none"> • Interior and exterior angles • Isosceles and equilateral triangles • Triangle inequalities 	0	6	6
10	<p>Special Segments in Triangles</p> <ul style="list-style-type: none"> • Perpendicular bisectors of triangles • Angle bisectors of triangles • Medians and altitudes of triangles • Midsegments of triangles 	0	9	9
11	<p>Properties of quadrilaterals</p> <ul style="list-style-type: none"> • Properties and conditions for parallelograms • Properties and conditions for rectangles, rhombuses and squares • Properties and conditions for kites and trapezoids 	0	10	10
12	<p>Coordinate Proof Using Slope and Distance</p> <ul style="list-style-type: none"> • Slope and parallel lines • Slope and perpendicular lines • Coordinate proof using distance with segments and triangles • Coordinate proofs using distance with quadrilaterals • Perimeter and area on the coordinate plane 	0	10	10
				100

OUT OF CLASS ASSIGNMENTS

1 not applicable



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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

Title	Type	Publisher	Edition	Medium	Author	ISBN	Date
Integrated Mathematics 1	Required	Houghton Mifflin Harcourt	1	print	Timothy D. Kanold	978-0-544- 38976-2	2015