



**COURSE OUTLINE : ABSE 36**

**N Non-Credit**

**COURSE ID 010484**

**OCTOBER 2019**

**COURSE DISCIPLINE :** ABSE  
**COURSE NUMBER :** 36  
**COURSE TITLE (FULL) :** Integrated Mathematics 2B  
**COURSE TITLE (SHORT) :** Integrated Mathematics 2B

### **CATALOG DESCRIPTION**

ABSE 36 focuses on geometric proofs, transformations, and dilations; trigonometric solutions to right triangles; measuring circles and arcs; solving volume problems; applying the basics of probability. This course is designed to meet the needs of students who wish to continue their study of Integrated Mathematics and to earn high school credit in mathematics. Laboratory 100 hours.

### **CATALOG NOTES**

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 Faculty Contact Hours: 100.00**

**Total Student Contact Hours: 100.00**

Recommended Preparation: ESL 40 and ABSE 35 or equivalent.



ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ABSE	35	Integrated Mathematics 2A	Determine the domain, range, and end behavior of a function;	Yes
2	ABSE	35	Integrated Mathematics 2A	transform the graph of the function $f(x)$ ;	Yes
3	ABSE	35	Integrated Mathematics 2A	solve absolute value equations and inequalities;	Yes
4	ABSE	35	Integrated Mathematics 2A	write a radical expression with a rational exponent;	Yes
5	ABSE	35	Integrated Mathematics 2A	add, subtract, and multiply monomials, binomials, and polynomials;	Yes
6	ABSE	35	Integrated Mathematics 2A	use the graph of a quadratic function to solve its related quadratic equation;	Yes
7	ABSE	35	Integrated Mathematics 2A	apply the Zero Product Property to solve quadratic equations in factored form;	Yes
8	ABSE	35	Integrated Mathematics 2A	choose a method for solving a given quadratic equation: factoring, using square roots, completing the square, etc.;	Yes
9	ABSE	35	Integrated Mathematics 2A	solve a system of equations when one equation is linear and the other is quadratic;	Yes
10	ABSE	35	Integrated Mathematics 2A	use the linear regression function on a graphing calculator to find the line of best fit for a two-variable data set;	Yes
11	ABSE	35	Integrated Mathematics 2A	utilize exponential functions to model the increase or decrease of a quantity over time;	Yes
12	ABSE	35	Integrated Mathematics 2A	determine whether a given data set is best modeled by a linear, quadratic, or exponential function;	Yes
13	ABSE	35	Integrated Mathematics 2A	define a complex number and use them to solve addition, subtraction, and multiplication problems;	Yes
14	ABSE	35	Integrated Mathematics 2A	utilize the standard form for the equation of a circle;	Yes
15	ABSE	35	Integrated Mathematics 2A	apply the distance formula for deriving equations for both vertical and horizontal parabolas;	Yes
16	ABSE	35	Integrated Mathematics 2A	find the inverses of functions from their graphs;	Yes



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17	ABSE	35	Integrated Mathematics 2A	graph transformations of parent square root functions and parent cube root functions;	Yes
18	ESL	40	ENGLISH AS A SECOND LANGUAGE LEVEL 4	demonstrate mastery of grammatical structures studied at a level sufficient to pass unit tests and the divisional grammar mastery test for this level;	Yes
19	ESL	40	ENGLISH AS A SECOND LANGUAGE LEVEL 4	write a three-paragraph composition that contains an introductory paragraph, a body, and a conclusion;	Yes
20	ESL	40	ENGLISH AS A SECOND LANGUAGE LEVEL 4	converse at a functional level adequate for everyday use on the campus and in the community;	Yes
21	ESL	40	ENGLISH AS A SECOND LANGUAGE LEVEL 4	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
22	ESL	40	ENGLISH AS A SECOND LANGUAGE LEVEL 4	decode 3,000-word reading passages, identify main ideas and supporting details, make inferences, and summarize short passages;	Yes
23	ESL	40	ENGLISH AS A SECOND LANGUAGE LEVEL 4	approximate standard American pronunciation well enough to be understood by typical fluent speakers of English.	Yes

**EXIT STANDARDS**

- 1 Prove and use theorems about angles formed by transversals that intersect parallel lines;
- 2 find the equation of a line that is parallel or perpendicular to a given line;
- 3 use perpendicular bisectors to find the point that equidistant for all the vertices of a triangle;
- 4 prove conditions to show that a quadrilateral is a rectangle, rhombus, or a square;
- 5 verify experimentally the properties of dilations given by a center and a scale factor;
- 6 show the properties of similarity transformations to establish the AA criterion for two triangles to be similar;
- 7 use congruence and similarity criteria for triangles to solve problems and to prove relationships;
- 8 demonstrate how altitude to the hypotenuse of a right triangle help one use similar right triangles to solve problems;
- 9 use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems;



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- 10 utilize the sine and cosine ratios, and their inverses, in calculations involving right triangles;
- 11 determine the measures of central angles and inscribed angles of a circle;
- 12 define the relationships between angles formed by lines that intersect a circle;
- 13 utilize formulas for the volume of a prism, cylinder and pyramid;
- 14 calculate the volumes of composite figure that include cones and spheres;
- 15 explain how sets and their relationships are used to calculate probabilities;
- 16 differentiate between independent, dependent and conditional probabilities;
- 17 describe how to use probabilities to make fair decisions.

**STUDENT LEARNING OUTCOMES**

- 1 Determine the methods for applying geometric proofs
- 2 Analyze various methods of measuring angles, triangles, circles, and arcs
- 3 Apply techniques of probability in decision making

**COURSE CONTENT WITH INSTRUCTIONAL HOURS**

	Description	Lecture	Lab	Total Hours
1	Proofs with Lines and Angles <ul style="list-style-type: none"> <li>• Angles Formed by Intersecting Lines</li> <li>• Transversals and Parallel Lines</li> <li>• Proving Lines are Parallel</li> <li>• Perpendicular Lines</li> </ul>	0	8	8
2	Proofs with Triangles and Quadrilaterals <ul style="list-style-type: none"> <li>• Angles of a Triangle</li> <li>• Isosceles and Equilateral Triangles</li> <li>• Triangle Inequalities</li> <li>• Perpendicular Bisectors of Triangles</li> <li>• Angle Bisectors of Triangles</li> <li>• Properties of Parallelograms</li> <li>• Conditions for Special Quadrilaterals</li> </ul>	0	17	17



3	<p>Similarity and Transformations</p> <ul style="list-style-type: none"> <li>• Dilations</li> <li>• Proving Figures are Similar</li> <li>• Corresponding Parts of Similar Figures</li> <li>• AA Similarity of Triangles</li> </ul>	0	8	8
4	<p>Using Similar Triangles</p> <ul style="list-style-type: none"> <li>• Triangle Proportionality Theorem</li> <li>• Subdividing a Segment in a Given Ratio</li> <li>• Using Proportional Relationships</li> <li>• Similarity in Right Triangles</li> </ul>	0	8	8
5	<p>Trigonometry with Right Angles</p> <ul style="list-style-type: none"> <li>• Tangent Ratio Sine and Cosine Ratios</li> <li>• Special Right Triangles</li> <li>• Problem Solving with Trigonometry</li> <li>• Using a Pythagorean Identity</li> </ul>	0	11	11
6	<p>Angles in Circles</p> <ul style="list-style-type: none"> <li>• Central Angles and Inscribed Angles</li> <li>• Angles in Inscribed Quadrilaterals</li> <li>• Tangents and Circumscribed Angles</li> <li>• Segment Relationships in Circles</li> <li>• Angle Relationships in Circles</li> </ul>	0	11	11
7	<p>Arc Length and Sector Area</p> <ul style="list-style-type: none"> <li>• Justifying Circumference and Area of a Circle</li> <li>• Arc Length and Radian Measure</li> <li>• Sector Area</li> </ul>	0	7	7
8	<p>Volume Formulas</p> <ul style="list-style-type: none"> <li>• Volume of Prisms and Cylinders</li> <li>• Volume of Pyramids</li> <li>• Volume of Cones</li> <li>• Volume of Spheres</li> <li>• Scale Factor</li> </ul>	0	11	11



9	<b>Introduction to Probability</b> <ul style="list-style-type: none"> <li>• Probability and Set Theory</li> <li>• Permutations and Probability</li> <li>• Combinations and Probability</li> <li>• Mutually Exclusive and Overlapping Events</li> </ul>	0	8	8
10	<b>Conditional Probability and Independence of Events</b> <ul style="list-style-type: none"> <li>• Conditional Probability</li> <li>• Independent Events</li> <li>• Dependent Events</li> </ul>	0	6	6
11	<b>Probability and Decision Making</b> <ul style="list-style-type: none"> <li>• Using Probability to Make Fair Decisions</li> <li>• Analyzing Decisions</li> </ul>	0	5	5
				<b>100</b>

**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



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**TEXTBOOKS**

<b>Title</b>	<b>Type</b>	<b>Publisher</b>	<b>Edition</b>	<b>Medium</b>	<b>Author</b>	<b>ISBN</b>	<b>Date</b>
California Integrated Mathematics 2	Required	Houghton Mifflin Harcourt Publishing Company	1	Print	Timothy D. Kanold	ISBN 9780544389885	2015