COURSE DISCIPLINE :   ABSE

COURSE NUMBER :   38

COURSE TITLE (FULL) :   Integrated Mathematics 3B

COURSE TITLE (SHORT) :   Integrated Mathematics 3B

CATALOG DESCRIPTION

ABSE 38 focuses on the integration of algebra and geometry through examining the mathematical measures of circles. Student also explore geometric and logarithmic sequences, as well as statistical measures. 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 37.

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ABSE	37	Integrated Mathematics 3A	Use slope to solve problems involving parallel and perpendicular lines;	Yes
2	ABSE	37	Integrated Mathematics 3A	write a coordinate proof;	Yes
3	ABSE	37	Integrated Mathematics 3A	use slope and the distance formula in coordinate proofs;	Yes
4	ABSE	37	Integrated Mathematics 3A	find the surface area of a prism or cylinder;	Yes
5	ABSE	37	Integrated Mathematics 3A	use the formula for the surface area of a sphere to calculate the surface areas of composite figures;	Yes
6	ABSE	37	Integrated Mathematics 3A	define and describe inverse functions;	Yes
7	ABSE	37	Integrated Mathematics 3A	explain how the Binomial Theorem is useful;	Yes
8	ABSE	37	Integrated Mathematics 3A	find the rational roots of a polynomial equation;	Yes
9	ABSE	37	Integrated Mathematics 3A	identify the features of a graph of rational functions;	Yes
10	ABSE	37	Integrated Mathematics 3A	add, subtract, multiply and divide rational expressions;	Yes
11	ABSE	37	Integrated Mathematics 3A	find the inverses of quadratic function and cubic functions;	Yes
12	ABSE	37	Integrated Mathematics 3A	simplify expressions containing rational exponents and radicals involving nth roots;	Yes
13	ABSE	37	Integrated Mathematics 3A	solve equations involving square roots and cube roots;	Yes
14	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
15	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

16	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
17	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
18	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
19	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 Define an arithmetic and a geometric sequence;
2 model the value of an investment that earns compound interest;
3 identify the properties of logarithms;
4 use trigonometric ratios to find side lengths and angle measures of right and non-right triangles;
5 define the relationship between the unit circle and radian measure;
6 identify the key features of the graphs of the sine, cosine and tangent functions;
7 choose which measures of center and spread are appropriate for a normal distribution, and which are appropriate for a skewed distribution;
8 calculate a confidence interval and a margin of error for a population proportion or population mean;
9 determine the measures of central angles and inscribed angles of a circle;
10 identify the key theorems about tangents to a circle;
11 calculate the length of an arc;
12 find the area of a sector of a circle;
13 write the equation of a parabola that opens up or down given its focus and directrix.

STUDENT LEARNING OUTCOMES

1 Build exponential and logarithmic functions that model relationships between two quantities
2 Provide mathematical justification for conclusions from sample surveys, experiments, and observational studies.
3 Explain the key theorems about tangents to a circle

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Sequence and Series • Arithmetic Sequences • Geometric Sequences • Geometric Series	0	7	7
2	Exponential Functions • Exponential Growth Functions • Exponential Decay Functions • The Base e • Compound Interest	0	9	9
3	Modeling with Exponential and Other Functions • Fitting Exponential Functions to Data • Choosing Among Linear, Quadratic, and Exponential Models	0	5	5
4	Logarithmic Functions • Defining and Evaluating a Logarithmic Function • Graphing Logarithmic Functions	0	5	5
5	Logarithmic Properties and Exponential Equations • Properties of Logarithms • Solving Exponential Equations	0	5	5
6	Trigonometry with all Triangles • Problem Solving with Trigonometry • Law of Sines • Law of Cosines	0	7	7
7	Unit-Circle Definition of Trigonometric Functions • Angles of Rotation and Radian Measure • Defining and Evaluating the Basic Trigonometric Functions • Using a Pythagorean Identity	0	7	7
8	Graphing Trigonometric Functions • Stretching, Compressing, and Reflecting Sine and Cosine Graphs • Stretching, Shrinking, and Reflecting Tangent Graphs • Translating Trigonometric Graphs • Fitting Sine Functions to Data	0	9	9

9	Gathering and Displaying Data • Data-Gathering Techniques • Shape, Center, and Spread	0	4	4
10	Data Distributions • Probability Distributions • Normal Distributions • Sampling Distributions	0	6	6
11	Making Inferences from Data • Confidence Intervals and Margins of Error • Surveys, Experiments, and Observational Studies • Determining the Significance of Experimental Results	0	7	7
12	Probability and Decision Making • Using Probability to Make Fair Decisions • Analyzing Decisions	0	5	5
13	Angles in Circles • Central Angles and Inscribed Angles • Angles in Inscribed Quadrilaterals • Tangents and Circumscribed Angles • Segment Relationships in Circles • Angle Relationships in Circles	0	12	12
14	Arc Length and Sector Area • Justifying Circumference and Area of a Circle • Arc Length and Radian Measure • Sector Area	0	7	7
15	Equations of Conics • Equation of a Circle • Equation of a Parabola	0	5	5
				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

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
California Integrated Mathematics 3	Required	Houghton Mifflin Harcourt Publishing Company	1	Print	Timothy D. Kanold	ISBN 9780544389885	2015