



COURSE OUTLINE : ABSE 18
N Non-Credit
COURSE ID 010412
November 2018

COURSE DISCIPLINE : ABSE
COURSE NUMBER : 18
COURSE TITLE (FULL) : Integrated Mathematics 1A
COURSE TITLE (SHORT) : Integrated Mathematics 1A

CATALOG DESCRIPTION

ABSE 18 is an introduction to algebraic reasoning and modeling. Topics of study include linear, exponential and radical functions, systems of equations, and data analysis. This course is designed to meet the needs of students who wish to begin their study of first semester Integrated 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 22 or equivalent.

ENTRY STANDARDS



	Subject	Number	Title	Description	Include
1				Explain and calculate mean, median and mode in the set of numbers;	Yes
2				perform conversion factors;	Yes
3				find the perimeter and area of the geometric figures;	Yes
4				compute problems using positive and negative numbers and algebraic operations;	Yes
5				solve equations with one variable;	Yes
6				demonstrate mastery of grammatical structures studied at a level sufficient to pass unit tests and the divisional grammar mastery test for this level;	Yes
7				decode 3,000-word reading passages, identify main ideas and supporting details, make inferences, and summarize short passages.	Yes

EXIT STANDARDS

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

STUDENT LEARNING OUTCOMES

- 1 solve one-variable linear equations and inequalities
- 2 use linear equations and inequalities to model real-world problems and be able to interpret solutions to such in the context provided by the problems
- 3 solve two-variable systems of linear equations and inequalities

COURSE CONTENT WITH INSTRUCTIONAL HOURS



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	Description	Lecture	Lab	Total Hours
1	Quantitative Reasoning <ul style="list-style-type: none"> • Solving equations • Modeling quantities • Reporting with precision and accuracy 	0	6	6
2	Algebraic Models <ul style="list-style-type: none"> • Modeling with expressions • Creating and solving equations • Solving for a variable • Creating and solving inequalities • Creating and solving compound inequalities 	0	11	11
3	Functions and Models <ul style="list-style-type: none"> • Graphing relationships • Understanding relationships and functions • Modeling with functions • Graphing functions 	0	9	9
4	Patterns and sequences <ul style="list-style-type: none"> • Identifying and graphing sequences • Constructing arithmetic sequences • Modeling with arithmetic sequences 	0	7	7
5	Linear Functions <ul style="list-style-type: none"> • Understanding linear functions • Using intercepts • Interpreting rate of change and slope 	0	7	7
6	Forms of Linear Equations <ul style="list-style-type: none"> • Slope-intercept form • Point-slope form • Standard form • Transforming linear functions • Comparing properties of linear functions 	0	11	11
7	Linear Equations and Inequalities <ul style="list-style-type: none"> • Modeling linear relationships • Using functions to solve one-variable equations • Linear inequalities in two variables 	0	7	7



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8	Multi-Variable Categorical Data <ul style="list-style-type: none"> • Two-way frequency tables • Relative frequency tables 	0	4	4
9	One-Variable Data Distributions <ul style="list-style-type: none"> • Measures of center and spread • Data distributions and outliers • Histograms and box plots • Normal distributions 	0	9	9
10	Linear Modeling and Regression <ul style="list-style-type: none"> • Scatter plots and trend lines • Fitting a linear model to data 	0	4	4
11	Solving Systems of Linear Equations <ul style="list-style-type: none"> • Solving linear systems by graphing • Solving linear systems by substitution • Solving linear systems by adding or subtracting • Solving linear systems by multiplying first 	0	9	9
12	Modeling with Linear Systems <ul style="list-style-type: none"> • Creating systems of linear equations • Graphing systems of linear inequalities • Modeling with linear systems 	0	7	7
13	Piecewise-Defined Functions <ul style="list-style-type: none"> • Understanding piecewise-defined functions • Absolute value functions and transformations • Solving absolute value equations • Solving absolute value inequalities 	0	9	9
				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



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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
Integrated Mathematics 1	Required	Houghton Mifflin Harcourt	1	print	Timothy D. Kanold	978-0-544- 38975-5	2015