CASE

Food Science and Safety
Common Core State Standards for High School Mathematics Alignment

		Unit 1 – Introduction to Food Science	Unit 2 – Chemistry of Food	Unit 3 – Safety of Our Food	Unit 4 – Food Processing and Preservation	Unit 5 – Food Health and Security	Unit 6 – Product, Preference, and Availability	Unit 7 – Food Product Development
CCSS: Conceptual Category – Number and Quantity								
The Real Number System	• Extend the properties of exponents to rational exponents.							
	• Use properties of rational and irrational numbers.							
Quantities	• *Reason quantitatively and use units to solve problems.	X	X	X	X	X	X	
The Complex Number System	• Perform arithmetic operations with complex numbers.							
	• Represent complex numbers and their operations on the complex plane.							
	• Use complex numbers in polynomial identities and equations.							
Vector and Matrix Quantities	• Represent and model with vector quantities.							
	• Perform operations on vectors.							
	• Perform operations on matrices and use matrices in applications.							

CCSS: Conceptual Category – Algebra								
Seeing Structure in Expressions	• *Interpret the structure of expressions.							
	• *Write expressions in equivalent forms to solve problems.					X		
Arithmetic with Polynomials and Rational Expressions	• Perform arithmetic operations on polynomials.							
	• Understand the relationship between zeros and factors of polynomials.							
	• Use polynomial identities to solve problems.							
	• Rewrite rational expressions.							
Creating Equations	• *Create equations that describe numbers or relationships.							
Reasoning with Equations and Inequalities	• Understand solving equations as a process of reasoning & explain the reasoning.					X		
	• Solve equations and inequalities in one variable.					X		
	• Solve systems of equations.							
	• *Represent and solve equations and inequalities graphically.							

		Unit 1 – Introduction to Food Science	Unit 2 – Chemistry of Food	Unit 3 – Safety of Our Food	Unit 4 – Food Processing and Preservation	Unit 5 – Food Health and Security	Unit 6 – Product, Preference, and Availability	Unit 7 – Food Product Development
CCSS: Conceptual Category – Functions								
Interpreting Functions	• Understand the concept of a function and use function notation.							
	• *Interpret functions that arise in applications in terms of the context.							
	• *Analyze functions using different representations.							
Building Functions	• *Build a function that models a relationship between two quantities.							
	• Build new functions from existing functions.							
Linear, Quadratic, and Exponential Models	• *Construct and compare linear, quadratic, and exponential models and solve problems.							
	• *Interpret expressions for functions in terms of the situation they model.							
Trigonometric Functions	• Extend the domain of trigonometric functions using the unit circle.							
	• *Model periodic phenomena with trigonometric functions.							
	• Prove and apply trigonometric identities.							
CCSS: Conceptual Category – Geometry								
Congruence	• Experiment with transformations in the plane.							
	• Understand congruence in terms of rigid motions.							
	• Prove geometric theorems.							
	• Make geometric constructions.							
Similarity, Right Triangles, and Trigonometry	• Understand similarity in terms of similarity transformations.							
	• Prove theorems involving similarity.							
	• *Define trigonometric ratios and solve problems involving right triangles.							
	• Apply trigonometry to general triangles.							
Circles	• Understand and apply theorems about circles.							
	• Find arc lengths and areas of sectors of circles.							
Expressing Geometric Properties with Equations	• Translate between the geometric description and the equation for a conic section.							
	• *Use coordinates to prove simple geometric theorems algebraically.							
Geometric Measurement and Dimension	• *Explain volume formulas and use them to solve problems.				X			
	• Visualize relationships between two-dimensional and three-dimensional objects.				X	X		

		Unit 1 – Introduction to Food Science	Unit 2 – Chemistry of Food	Unit 3 – Safety of Our Food	Unit 4 – Food Processing and Preservation	Unit 5 – Food Health and Security	Unit 6 – Product, Preference, and Availability	Unit 7 – Food Product Development
Modeling with Geometry	• *Apply geometric concepts in modeling situations.					X		
CCSS: Conceptual Category – Statistics and Probability								
Interpreting Categorical and Quantitative Data	• *Summarize, represent, and interpret data on a single count or measurement variable.		X	X	X	X		
	• *Summarize, represent, and interpret data on two categorical and quantitative variables.							
	• *Interpret linear models.							
Making Inferences and Justifying Conclusions	• *Understand and evaluate random processes underlying statistical experiments.				X			
	• *Make inferences and justify conclusions from sample surveys, experiments, and observational studies.				X	X	X	
Conditional Probability and the Rules of Probability	• *Understand independence and conditional probability and use them to interpret data.							
	• *Use the rules of probability to compute probabilities of compound events in a uniform probability model.							
Using Probability to Make Decisions	• *Calculate expected values and use them to solve problems.							
	• *Use probability to evaluate outcomes of decisions.							