# Introduction to Agriculture, Food, and Natural Resources

## Common Core State Standards for High School Mathematics Alignment

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## 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.*

### 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.*

### 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.
- Solve equations and inequalities in one variable.
- Solve systems of equations.
- *Represent and solve equations and inequalities graphically.*
### CCSS: Conceptual Category – Geometry

<table>
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| **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.  
· Visualize relationships between two-dimensional and three-dimensional objects. |
| **Modeling with Geometry** | · *Apply geometric concepts in modeling situations. |

### CCSS: Conceptual Category – Statistics and Probability

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| **Interpreting Categorical and Quantitative Data** | · *Summarize, represent, and interpret data on a single count or measurement variable.  
· *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.  
· *Make inferences and justify conclusions from sample surveys, experiments, and observational studies. |
| **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. |